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Educational Theory....

EXTENSIONAL LIMITS OF ARISTOTELIAN LOGIC

EXISTENTIALISM AND EDUCATION

AN APPRAISAL OF "RECONSTRUCTION IN PHILOSOPHY"

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TABLE OF CONTENTS ON BACK COVER

Educational Theory

VOL. II APRIL, 1952 No. 2

THE IDEA OF LEARNING AS DEVELOPMENT OF INSIGHT

BY ERNEST E. BAYLES

THEORY REGARDING THE NATURE OF LEARNING lies close to the heart of teaching theory. Lack of clarity regarding the former, whether in high degree or low, leads to corresponding lack of clarity regarding the latter. This is not to say that learning theory is the whole of teaching theory; far from it. Theory regarding social organization and theory regarding the nature of subject matter are equally essential. But, with the confusion which still surrounds current professional thinking regarding the nature of learning, further discussion of the question seems much in order.

Lack of clarity of the bond theory—of psychological connectionism—was brought home to me early in the twenties. As a supervisor of practice teachers, I was supposed to help beginners achieve competence in handling the learning process. But connectionist principles always pointed to wrong procedures.

Repetitive drill was obviously wrong. Yet the path-wearing, bond-forming principle of conditioning, leading to supposedly lowered synaptic resistance along preferred neural pathways, pointed inexorably to that. Both the logic of the theory and the nature of teaching materials available at the time led inevitably to repetitive drill.

Then Gestalt theory, and relativism as a clear-cut psychological principle, began to present themselves for consideration. Threads of clarity began to penetrate the confusion in thought, and order began to emerge. The books of Koffka, Koehler, and Wheeler appeared; then Bode's penetrating *Conflicting Psychologies of Learning*. Afterwards, Thorndike reported that, on the basis of his research findings, repetition (*per se*) has little, if any, effect on learning and, although making no attempt to define the term, proposed the concept of "belongingness."

Looking at the matter through mid-twentieth century eyes, individuals appear to behave on the basis of the principle of least action; *to act in such a way as to*

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try to achieve an adopted pattern of goals in the quickest and easiest way that they sense or comprehend as available under existing circumstances. In other words, we seem to be inherently lazy; to seek always the easiest way to get done what appears necessary or desirable. Laziness seems no longer to be intrinsically vicious. It seems merely the wise thing to do something the easy instead of the hard way. If we see an acquaintance taking a long way home, we are likely to suspect either his motives or his judgment.

INSIGHT AND THE PRINCIPLE OF LEAST ACTION

Reliance upon the principle of least action in the interpretation of behavior means that we base it upon three factors: *goal*, or what a person wants or intends to do; *confronting situation*, or what he will meet in proceeding to attain the goal; and *insight*, the way he sees or sizes up the situation with which he is confronted. You will note that we do not say the quickest and easiest way available; we say the quickest and easiest way which is sensed or comprehended *as* available. We do not take paths that we know nothing about.

What does this interpretation of behavior mean for learning? Learning is repeatedly defined as a change in behavior. And, when a person learns, he indeed undergoes a change in behavior. He is likely to act quite differently from before. But does every behavioral change mean learning?

A change in action or behavior will accompany a change in goal, even though no learning may have occurred. Likewise, a change in behavior will accompany a change in confronting situation, even though no learning may have occurred. Evidently, and this seems to be amply supported by experimental and experiential evidence though as yet not so recognized in psychological literature,[1] learning represents and is confined to *a change in insight.*

The view that learning means development of insight, and that alone, is decidely revolutionary. Very few textbooks in educational psychology yet take this stand in a clear-cut way. However, comparison of today's texts with those of a quarter-century ago or even a decade ago shows that they are coming to it. About the last step in the transition is to argue that, although conditioning may be the way in some learning situations, that kind occurs very rarely, if at all, in school work. Let us examine the idea of learning as development of insight.

THE MEANING OF "INSIGHT"

First, what do we mean by the term insight? We do not mean any linguistic expression. We refer to what lies back of any word statement; to that which one catches even before he has words to express it, such as the swing of a ball bat

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[1] See Howard A. Book, *An Analysis of Contemporary Theories of Learning With a View Toward Their Applicability in Classroom Situations*, an unpublished doctoral dissertation at the University of Kansas, available in microfilm. 1948. 280 pp. This is a report on a careful study of all available data on experimentation with learning in light of the question, What theory do the data best support—insight theory, the theory of conditioning, or a combination of both? The findings are that the insight theory handles the data adequately and harmoniously; no combination with conditioning is necessary even with thoroughly rote material.

or an idea for which one cannot quite find the right word. Perhaps insight should be defined as *a sense of, or feeling for, pattern.* We may have words for it or we may not; it may be clear or it may be more or less confused; it may be true or it may be false, fruitful or unfruitful. It is on the basis of what we see as being required by a situation that we design behavior. That is what, for us, constitutes reality; the real basis upon which we act in any and every case of intelligent behavior.

How does learning as development of insight differ from the notion of learning as establishment or alteration of neural pathways? To wear a path requires continuous traversal of an area by way of a given line, without deviation. That is the precise meaning, neurologically speaking, of the so-called Law of Use. Through use, resistance across a given synapse is lowered and impulses cross it more easily afterwards. This point is vital to the path-wearing idea of conditioning, regardless of whether a commitment is hazarded as to the nature of the resistance. It was neural paths of this kind which Lashley sought and failed to find. Repeating a line of action always the same way until it is "stamped-in" is what the concept has to mean if it means anything. Repetitive drill is another word for it.

On the other hand, development of insight means establishment of a sense of, or feeling for, pattern. It may require looking sharply into a confronting situation, but imaginatively, in order to make the pattern "jump out at you," as when we used to look for hidden faces in a cleverly designed drawing or for strange animals in fleecy clouds. Or it may require closing the eyes and trying intently to visualize a situation, possibly not yet fully observed. Then, catching the point, we act with precision and exactitude. It is less of learning by doing and more of learning by seeing, even though with the mind's eye. Emphasis, in the process of learning, shifts from going through motions to conceptualization.

In working on a difficult violin passage, a learner needs first to study the passage, figure out fingering which will lie best for the hand, imagine the "feel" of the passage as a whole; then swing into execution. Repeatedly have I had music teachers report to me with amazement the results of tryouts of this kind on the parts of their students. It was an attack different from any used before, and the "hang" of it came with a rush that they had never before witnessed.

A workman has to get the "heft" of an object before proceeding to move it. A batsman gets the feel of his bat before advancing to the plate and a golfer the swing of his club before stepping up to the tee. A child, approaching the multiplication process, needs to "get the sense of the matter" before any attention whatsoever is given to speed in producing answers for particular combinations. The thought line probably needs to go from addition to multiplication; first see multiplication as a form of addition. If you add five fours together, how many will you have? Therefore, five fours make what? Or, five times four equals what? Take it easy; not this fast. Let each step "sink in" before taking the next. Insights do not form at the word, "Go!" although when they do form they practically always come suddenly. James employed the phrase, "flyings and perchings."

THE PLACE OF PRACTICE

But, I am asked, shall we dispense with practice? The answer is, of course, that we shall not. Because practice is to be something other than repetitive

stamping-in, does not mean no practice. From the point of view of learning as development of insight, the repeated efforts of practice represent each time doing the thing differently from the way it was done before. Try it; see what happens; try to diagnose why it did not turn out as intended; modify procedure in light of the diagnosis; try it again. Each trial is distinctly different from the previous ones; a step in a search for the best way to do a thing. Once that best way is caught—done with a realization of *why* the doing achieved the desired end—then the matter may be permitted to rest for a while. Come back to it some time later—a day, two days, a week, or more—just to see whether it still goes right. If the point was really caught, later performances are very likely to be even better than that or those at the time of arrival of insight. If not, it is probable that the point was not really caught when it was thought to be.

It is not how many times a thing is done that counts. It is the grasp the learner has of it that makes the difference. And this "grasp" is very much of a mental phenomenon, whether the subject is basketball, woodwork, appreciation of an art object, or mastery of a proposition in mathematics or science. Once one "gets the hang of a thing," the feel for pattern, one does not have to repeat and repeat and repeat in order to make perfect. There may, of course, be much else yet to be learned; more work to do. But that should be analysed in terms of the additional insights to be gained, and each subsequent insight attacked in the way just indicated. We need to get completely away from repetitive drill. The present writer feels thoroughly justified in insisting that, *whenever repetitive drill is invoked, learning will suffer.*

Practice, which represents a search for insight, means persistently working with something new. In spelling, for example, the policy of working on a particular list of words until all of the words are known is to be almost, if not completely, abandoned. Instead, particular words are always to be approached as typifying a certain spelling pattern, the pattern being what is sought rather than a word for its own sake. In the earlier stages, word-lists need to be chosen on the basis of spelling patterns which they exemplify. Study will then represent a search for the hidden pattern and, once discovered, other words will be sought which also conform. Later, words will be sought which seemingly should conform to the pattern, but do not. These, then, should be studied to see wherein they are divergent, to find why if possible, and to see whether the divergence is typical of other words as well. If so, a statement of the divergence and something of when to expect it may possibly be incorporated in the original rule; e.g., *i* before *e* except after *c*, etc.

It will be noted that this represents a return to spelling rules, a practice abandoned during the teens. It may well be that the abandonment worked to the detriment of instruction in spelling but, be that as it may, it should also be noted that there is a vital difference between former practice and the one here contemplated. Formerly, the rule was learned more or less by rote. Then the following list of words supposedly exemplifying the rule was learned, also more or less by rote. Many were the pupils who failed to note the connection between the rule and the words which followed. We propose that the words come first and that whatever rule is adopted be one worked out by the students and held only so long as it performs in a fairly satisfactory manner. When, as vocabulary ex-

pands, an adopted rule becomes unsatisfactory, a new study is inaugurated and a new rule formulated. And it must be remembered that, although we speak of "rules," we are really meaning basic insights, as previously defined.

It is true, of course, that the English language is bothersomely non-phonetic. But this is far from completely so, in spite of what many so-called experts used to insist. It is likely that at least 95 percent of words likely to be used can be handled in the above manner. If the rest must be learned by rote, so be it; but even then a sound-pattern or a visual pattern can be sought. It will be much better to learn only five percent by rote, if that be necessary, than to learn all in that manner.

We have dealt with spelling for what it typifies rather than for its own sake. Study is focused upon "getting the idea," particular cases merely serving as a vehicle by way of which an insight is gained. Once a child catches the phonetic signification of "at," he can handle "at" words whether he has met them before or not. The kind of spelling instruction inaugurated under the aegis of connectionism took a child's attention completely away from sound-letter relationships. If they were to be discovered at all, it had to be done by a child entirely on his own, in spite of his instruction rather than because of it. Small wonder we turned out a generation of poor spellers.

And here we may well inject a point of theory with reference to transfer of training. Our suggestion is that an individual will transfer previous training (insights gained) if and whenever he sees a confronting situation as presenting an opportunity for transfer, and if his purposes at the time make the transfer appear to him desirable. Thus, again, it is not how many times a thing is done that counts. We re-employ an insight whenever we discover an opportunity and are disposed to take advantage of it. Training will not transfer, even though opportunity offers, if the individual does not recognize it as an opportunity, or if indisposed to take advantage of the opportunity when recognized. Therefore, training for transfer requires, first, development of widely generalizable insights. But it requires considerably more than that. It also requires fertility of imagination, in order to wrest old learnings out of the limbo of forgotten things and see them as again useable. And it requires a set of suitable dispositions (or goals), one being the disposition to search one's memory—to be self-reliant and resourceful—when confronted with a situation seemingly new.[2]

BELONGINGNESS AND REPETITION

Early in this paper we mentioned Thorndike's concept of *belongingness*. His proposal, early in the thirties, was that belongingness must accompany repetition; by itself, repetition has little if any effect. But what is belongingness? Thorndike did not say. That it can, and should, mean insight as we are using the term seems highly reasonable. It may, in fact, seem so reasonable or obvious that we may be thought by many as hypercritical to say or imply that its original user

[2] See Ernest E. Bayles, *The Theory and Practice of Teaching*. New York: Harper and Brothers, 1950. Chapter 6 puts somewhat of a new look on the old question of transfer of training. And Chapters 4, 5, and 7 represent much of an elaboration of what is in this paper.

should have defined it. Yet here is a case which shows exactly why words need to be defined with operational clarity.

Thorndike's *operations* with reference to learning, even after his admission of belongingness, continued to include repetition—repetition in the path-wearing sense. In fact, it was *repetition with belongingness;* repetition came first, belongingness was an adjunct. Thus, the S-R, reflex-arc principle remained intact, and connectionism remained in force.

It is exactly at this point that the insight theory parts company with connectionism, even though belongingness may be included. *Insights may be gained without repetition,* and when they do no repetition is needed. How many of us, who have sufficient insight to refuse to jump from a 50-foot height, gained that insight by even a single repetition? It may be true that we learned it from lesser jumps, but the learning was by transfer nonetheless. Moreover, this is not an isolated case. It is typical of the bulk of human activity. It represents the heart of habit-level action. Whenever a confronting situation, and its meaning in terms of desirable action, occur simultaneously in experience, correct action is possible the first time; even though the action may not be taken. If there is any validity to the truism that life is forever new—that no line of action is ever exactly twice the same—then we are continually having to act correctly the first time or be hopelessly incompetent. This is the point of R. H. Wheeler's repeated assertion that any psychology which fails to explain correct action the first time fails to explain human behavior at all.

There are many times, of course, when a situation and its meaning do not occur simultaneously in experience. This is a problem-case and reflective thought is in order. Or the anticipated meaning of a situation—the line of action first considered as appropriate thereto—does not turn out as anticipated. Then an alternative has to be sought. But the procedure in each case is much more accurately described by Dewey's "complete act of thought" than by Thorndike's "trial and error" process as Thorndike originally described it. Dewey's description was of a search for insight; Thorndike's was of gradual stamping-in of a correct line of action through chance repetition of chance acts which later proved to be the right ones.

PROOF OF THE THEORY

Finally, we shall probably be asked what proof we have of the correctness of the insight theory of learning. Our answer is fairly simple. We rely upon the operational test. We deduce from the generalized theory the observable facts which, in given or particularized cases, the theory logically implies. *In the degree to which* the facts turn out as anticipated or deduced, the theory is taken as proven; proven in the sense of being demonstrated as dependable. Any theory which weathers this test better than competing theories is taken to be the better or best of those under consideration.

That the insight theory of learning has, so far, weathered this test is, I believe, a reasonable statement. We cannot here review the evidence, but the study previously cited[3] does represent such a review. Whenever, in connection with

[3] Book, *op. cit.*

studies which have been made, sharp and precise deductions disclose the possibility of experimentally or experientially observable differences, the findings have consistently been such as to favor overwhelmingly the insight theory. It seems that the more painstaking or meticulous the analysis, the more convincing is the showing.

In summary, then, it seems that, if teaching is to be most effectual, the learning theory which should be employed is that which seeks consistently to develop insight. Procedural emphasis shifts from repetition to conceptualization, from learning by doing to learning by "seeing." Learning is not a function of the number of times an act is repeated. It is the feeling for pattern which is caught during a performance—the insight gained—that counts. Ten performances may have no effect and the eleventh one turn the trick. A teacher needs to look always for the "Oh! I see!" response in whatever form it may become manifest. And it often comes after rehearsal periods are over; during a time of no performance at all. Many a time, of course, a learner or his teacher may feel that he has it when indeed he does not. But this merely indicates a need for caution against unjustified optimism. It does not deny the principle. Learning as development of insight does not mean elimination of practice, although over-all reduction of practice time—often marked reduction—may reasonably be universally expected if repetitional procedures have previously been employed. Learning as development of insight does mean that repetitive drill shall be eliminated completely; that it shall be no more. □

■ FORTHCOMING YEARBOOKS OF THE JOHN DEWEY SOCIETY

The Yearbook Commission has announced the schedule of publication of the Society's Yearbooks for the next five years. The Twelfth Yearbook, *Educational Freedom in an Age of Anxiety*, has been completed and is now in the hands of the publisher. A definite publication date will be announced in the fall of 1952. This book confronts the present problem of the various encroachments upon the freedoms of our educational system. It views free inquiry and freedom of expression as essential to the continuity of the heritage and builds its case in part by considering critically some of our more acute difficulties. Special attention is given to the present status of civil liberties, to existing threats, to the nature and function of anxiety, to community-school relationships, to secular achievements and religious influences, as well as to the broad question of assuring educational freedom in a society with diverse beliefs and outlooks. The book was prepared under the editorship of H. Gordon Hullfish. Other contributors are Horace Kallen, Vivian T. Thayer, Laurence Sears, M. F. Ashley Montagu, David Spitz, John L. Childs, R. Lawrence Siegel, Ralph Dewey, Philip Jacobson, Alan Griffin, Frederick McLaughlin, Allen Hynek, and William Van Til.

The Thirteenth Yearbook, *Current Approaches to the Problem of Unity in an Age of Conflict*, will analyze the writings of eleven contemporary philosophers who have suggested a variety of bases upon which, in their opinion, some degree of unity may be built in our diverse modern culture. The manuscript of this yearbook is nearing completion and is expected to be published in 1953.

The Committees working on three other Yearbooks have made a great deal of progress and the publication of these books is expected to follow in successive years. The Yearbooks and their respective editors are: *The American Elementary School*, Harold Shane; *The Social Role of the Teacher*, Lindley J. Stiles; *A Case Book of Controversy*, Miles Cary. During the past year, still another Yearbook Committee, under the chairmanship of John W. Davis, has been doing preliminary work on a Yearbook to be entitled, *The Negro in American Education*. □

A MID-CENTURY APPRAISAL OF "RECONSTRUCTION IN PHILOSOPHY"

BY JOSEPH F. BLAKE, JR.

The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty and we must rise to the occasion. As our case is new, so must we think and act anew. We must disenthrall ourselves, and then we shall save our country.

—ABRAHAM LINCOLN
After the Battle of Fredericksburg.

THE WORLD OF TODAY IS UNHAPPILY MARKED by the continued growth of confusion and anxiety. There are furtive dartings and hasty retreats in every direction by men in search of certainty or clarity. Everyone agrees that all questions must be reexamined, and this agreement has been made imperative by atomic revolution. In 1920, when John Dewey wrote *Reconstruction in Philosophy*, recently re-issued by Mentor books, the atom bomb was twenty-five years in the future. A rereading of this book today emphatically reveals the timely clarity with which Dewey projected his world outlook.

As Dewey himself points out in the Introduction, a more appropriate title today would be Reconstruction *Of* Philosophy, because the years since the first issue of this work have brought sharply into focus the basic postulate:

> ". . . That the distinctive office, problems and subject matter of philosophy grow out of the stresses and strains in the community life in which a given form of philosophy arises, and that, accordingly, its specific problems vary with the changes in human life that are always going on and that at times constitute a crisis and a turning point in human history." [1]

The traditional problem of philosophy has been the search for something fixed and certain, a safe harbor into which man could sail for refuge against the storms of the actual world. In the world of today, it has become increasingly difficult to find refuge in the ports of yesterday. The stormy seas of scientific revolution have sent tidal waves into every cranny and nook. Dewey comments on the withdrawal of philosophers from the present-day scene and points out that these withdrawals are "manifestations of just those defects of past systems that render them of little value for the troubled affairs of the present; namely, the desire to find something so fixed and certain as to provide secure refuge."[2] The job of philosophy, then, if it is to be of any worth to man, is not in the evasions and obscurities of withdrawal, but in dealing directly with the world of today. The task of philosophy is to clarify the ideas of man as to the social and moral strifes of his own day. "Its aim is to become so far as humanly possible an organ for

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[1] John Dewey, *Reconstruction in Philosophy*. (New York: Mentor Books, 1950). p. 8.
[2] *Ibid.*, p. 9.

dealing with these conflicts." Dewey adds that, as a compensation for the loss of the otiose pursuit of Ultimate and Absolute Reality, philosophers can uniquely satisfy their needs by "enlightening the moral forces which move mankind and in contributing to the aspirations of men to attain a more ordered and intelligent happiness." *Reconstruction in Philosophy* is both challenge and opportunity. Dewey examines traditional philosophy and, in the scientific spirit, urges believing man to become thinking man.

THE ORIGIN OF PHILOSOPHICAL THOUGHT

In order to know what constitutes philosophy, we must begin with its origins. Where did philosophical thought originate? To get an answer to this question, we must examine the nature of man himself in relation to the other existing animal life. For the lower animals, experience exists as of the moment only, and here is precisely the point at which man and the lower animals differ, for man preserves his past experiences. This past is recalled because it adds to the present and for no other reason; so Dewey concludes that the memory is emotional rather than intellectual and practical.

> ". . . The memory has all the excitement of the combat without its danger and anxiety. We need to recognize that the ordinary consciousness of the ordinary man left to himself is a creature of desires rather than of intellectual study, inquiry or speculation. Man ceases to be primarily actuated by hopes and fears, loves and hates, only when he is subjected to a discipline which is foreign to human nature, which is, from the standpoint of natural man, artificial." [3]

Early man obviously did not possess the discipline necessary for anything other than the emotional filling of the emptiness of his leisure with vicarious experience; consequently, the memory of this man is based on fancy and imagination. It should follow that man is governed, not by thought, but by memory; and memory is not the remembering of actual facts, but dramatic fancy born out of the safety of vicarious experience. This is the stuff out of which philosophy finally emerges. This original material then passes through two stages before becoming philosophy proper. First, the stories and legends and their accompanying dramatizations are consolidated and institutionalized into cults and doctrines. Although there is still lacking the need for intellectual proof, man provided this simply because he can never be wholly the creature of fancy. The need arose for him to reconcile the traditional codes that had grown out of this fancy with the matter-of-fact knowledge that had inevitably grown up. As Dewey neatly puts it,

> "Although it is surprising how little check the environment puts upon the formation of ideas, since no notions are too absurd not to have been accepted by some people, yet the environment does enforce a certain minimum of correctness under penalty of extinction." [4]

The arts and crafts of early man enlarged, and, as a consequence, matter-of-fact knowledge developed and became more complex. It is at this point that we note the origins of science. Facts not only accumulated, but man also learned to deal with materials and tools, and this promoted the experimental habit of mind. The imaginative beliefs continued to exist alongside matter-of-fact knowledge for a

[3] *Ibid.*, p. 32.
[4] *Ibid.*, p. 34.

long time, and were later systematically kept apart. They became the possession of separate social classes, having acquired definite social and political values and functions, those in possession of the religious and poetic beliefs being associated with the ruling classes, and the possessors of the matter-of-fact knowledge relegated to a lower status. Dewey makes an interesting observation in connection with this point. He says that it was this fact in Athenian society which, in spite of its great achievements, delayed general and systematic use of the experimental method.

Matter-of-fact knowledge in due time increased to such an extent, both vertically and horizontally in every aspect, that it came into direct conflict with imaginative beliefs on every front. Even though the whole social and political structure was permeated with the ramifications of the traditional rule of fancy, such minds as Plato's could not accept the situation, and probably through its very nature were forced into action. Something had to be done, for this conflict presented an untenable condition. What Plato and Aristotle did in answer to this has provided the Western world with a philosophical theme that has persisted right down to the present. They took what had rested upon custom in the past, restoring it, not upon the habits of the past, but upon the metaphysics of Being and the Universe. Metaphysics became a substitute for custom and the source of higher moral and social values. This was charged and reinforced by the Christian philosophy of Medieval Europe. The persisting task of philosophy has been the attempt "to reconcile the two different types of mental products."

From these origins, certain traits have grown that are significant in the understanding of the plight of certain philosophical thought today. First was the attempt to justify rationally things that were accepted previously because of their emotional congeniality and social prestige. Secondly, because of the lack of rationality involved in these matters, the apparatus of reason and proof became a peculiarly important affair.

> "But when it comes to convincing men of the truth of doctrines which are no longer to be accepted upon the say-so of custom and social authority, but which are also not capable of empirical verification, there is no recourse save to magnify the signs of rigorous thought and rigid demonstration. Thus arises that appearance of abstract definition and ultra-scientific argumentation which repels so many from philosophy but which has been one of its chief attractions to its devotees."[5]

BACON AND THE LOGIC OF DISCOVERY

Francis Bacon is the great fore-runner of the spirit of modern life, the source and inspiration of the pragmatic method. Dewey is careful to point out the limitations imposed upon Bacon as a victim of his past, but, more importantly, his great contribution in directly attacking the Aristotelian method by pointing out that its demonstration and persuasion aimed primarily at the conquest of mind rather than nature. The assumption was that one was already in possession of a truth and the only problem was to convince. Bacon could not accept already existent truth, and was more interested in truths still to be attained. His theme was the logic of discovery, not of argumentation, proof, and persuasion. "All truth has its chief value in assisting the detection of new truth." Nature would yield her

[5] *Ibid.*, p. 41.

secrets through penetrating inquiry, and the demonstration of old truths was a fruitless occupation. Life and opportunity exist in the discovery of new facts and truths.

> "Pure reasoning as a means of arriving at truth is like the spider who spins a web out of himself. The web is orderly and elaborate, but it is only a trap. The passive accumulation of experience—the traditional empirical method—is like the ant who busily runs about and collects and piles up heaps of raw materials. True method, that which Bacon would usher in, is comparable to the operations of the bee, who, like the ant, collects material from the external world, but unlike that industrious creature attacks and modifies the collected in order to make it yield its hidden treasures." [6]

A crucial function of philosophy is to free men's minds from bias, enlarging the world within their comprehension. As William James put it, "Philosophy is vision," and Francis Bacon was one of the first to begin seeing.

The continued growth of matter-of-fact knowledge, in spite of all the efforts of philosophy, overflowed the barriers erected to keep it back, into new ideas. Dewey lists some of these:

> "1. The transfer of interest from the eternal and universal to what is changing and specific, concrete.
>
> 2. The gradual decay of the authority of fixed institutions and class distinctions and relations, and a growing belief in the power of individual minds, guided by methods of observation, experiment and reflection, to attain the truths needed for the guidance of life.
>
> 3. Great store is set upon the idea of progress. The future rather than the past dominates the imagination. The Golden Age lies ahead of us, not behind us.
>
> 4. The patient and experimental study of nature, bearing fruit in inventions which control nature and subdue her forces to social uses, is the method by which progress is made. Knowledge is power and knowledge is achieved by sending the mind to school to nature to learn her processes of change." [7]

Dewey pursues this to Kant, where the great effect of changes took place in the substitution of an idealism based on epistemology for the idealism based on the metaphysics of classic antiquity. The ideas represented by Bacon's Knowledge is Power failed in their attempt to achieve independent expression because the strength of the ancient traditions was still great enough to project them, unconsciously or otherwise, into man's thinking. It is precisely at this point that Dewey calls for philosophic reconstruction.

> "Essential philosophic reconstruction represents an attempt to state these causes and results in a way freed from incompatible inherited factors. It will regard intelligence not as the original shaper and final cause of things, but as the purposeful, energetic re-shaper of those phases of nature that obstruct social well-being. It esteems the individual not as an exaggeratedly self-sufficient Ego which by some magic creates the world, but as the agent who is responsible, through initiative, inventiveness, and intelligently directed labor, for re-creating the world, transforming it into an instrument and possession of intelligence." [8]

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[6] *Ibid.*, p. 48.
[7] *Ibid.*, p. 58-59.
[8] *Ibid.*, p. 61.

THE IMPACT OF THE SCIENTIFIC REVOLUTION

The effects of the scientific revolution are the warp and woof of John Dewey's philosophical thinking. He keeps you ever conscious of the fact that we no longer live in a closed universe by pointing out that science has presented us with one infinite in space and time. Consequently, men of science are interested only in laws of motion, of generation and consequence, rather than laws of fixity. Change is now the measure of "reality," and energy the weight of being. *Law* now only means the constant relationship among changes; and the material of which we are the surest, that is, the better known, is the material of direct handling and observation. The earth has been relegated to its true position, not as superior in rank to the sun, moon, and stars, but as their equal in dignity. The reading of social relationships into nature, resulting in the arbitrary relations between ruler and ruled in order to prevent chaos, leads us directly to the intellectual task of the twentieth century. The task of philosophy today is to make at home the new ideas and methods of science in social and moral life. The dogma of fixed, unchangeable types and species, of arrangement in classes of higher and lower, of subordination of the transitory individual to the universal, must have its grip on the science of life ripped away. When this is achieved, the reconstruction of philosophy will be an accomplished fact.

EXPERIENCE AND REASON

Dewey makes certain claims for experience as a guide in science and moral life that cast a very different light on the matter. In the past and, for this matter, in some quarters during the present, experience has been looked upon as in itself, as such, being effective; and, as a result, default is inevitable and irremediable. Certainty rests only in a region beyond experience. A defective experience is not capable of remedy in some better experience. Practical action simply does not yield the results that these gifted folk find in conceptual contemplation. Things have happened that paralyze these notions.

> "Two things have rendered possible a new conception of experience and a new conception of the relation of reason to experience, or, more accurately, of the place of reason in experience. The primary factor is the change that has taken place in the actual nature of experience, its contents and methods, as it is actually lived. The other is the development of a psychology based upon biology which makes possible a new scientific formulation of the nature of experience."[9]

The important implications for philosophy found in psychology revolve about the new discovery of the interaction of organism and environment. The organism acts upon its environment, which in turn acts upon it, resulting in some adaptation becoming the primary fact. In view of this, knowledge cannot be offered as the basic category. It is no longer something separate and self-sufficing, but involved in the process by which life is sustained and evolved. The senses become stimuli to action rather than gateways of knowing. Experience grows out of the life process and sensations are simply points of readjustment. There is no longer any need for categorical glue to weld together the manifold experiences garnered through the senses.

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[9] *Ibid.*, p. 81.

> "The true 'stuff' of experience is recognized to be adaptive courses of action, habits, active functions, connections of doing and undergoing; sensori-motor coordinations." [10]

The basis and material are now provided for the full growth of intelligence as an organizing factor within experience.

What has happened to experience itself is important in this consideration. Whereas in the past man has used his prior experience to form customs to be followed or broken, "now, old experience is used to suggest aims and methods for developing a new and improved experience." Suggestions growing out of past experience used in this reconstruction constitute intelligence, and reason is experimental intelligence.

> "Intelligence is not something possessed once for all. It is in constant process of forming, and its retention requires constant alertness in observing consequences, an open-minded will to learn and courage in readjustment." [11]

Reason is no longer the cluttered path to absolute truth of the past. It too assumes its rightful place in human affairs.

Two of the most important bones that the philosophical dogs of the past have buried, dug up, and chewed upon again and again, have been the conceptions of the "real" and the "ideal." When these old bones of contention undergo reconstruction they are not recognizable. Both of these concepts in the past have represented philosophy's flight from the concrete fact of imperfectibility into the perfectibility of non-existence. Now the "real" is not ready-made and final, but simply that which is to be changed. The "ideal" ceases to be that ready-made world which Dewey calls the "asylum from empirical deficiencies." They now represent intelligent possibilities to be used as methods for re-making and improving the actual, existing world.

> "Philosophy, let it be repeated, cannot 'solve' the problem of the relation of the ideal and the real. That is the standing problem of life. But it can at least lighten the burden of humanity in dealing with the problem of emancipating mankind from the errors which philosophy has itself fostered." [12]

EXPERIENCE AND LOGIC

What happens to logic in this new way of looking into the relation of experience and reason, and the real and the ideal? In this new scheme of things, intelligence is the means for the intentional reconstruction, so logic is not a formal thing in itself: It is more importantly a systematized and clarified account of the procedures. It now becomes a tool that will enable thinking to operate more efficiently in carrying on reconstruction. The traditional view that logic should deal with how men *should* think now seems quite foolish.

> "Logic is both science and an art; a science so far as it gives an organized and tested descriptive account of the way in which thought actually goes on; an art, so far as on the basis of this description it projects methods by which future thinking shall take advantage of the operations that lead to success and avoid those which result in failure." [13]

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[10] *Ibid.*, p. 86.
[11] *Ibid.*, p. 89.
[12] *Ibid.*, p. 111.
[13] *Ibid.*, p. 115.

When considered as experimentally founded, logic assumes its rightful importance in human affairs, for now we see that it is concerned with the development and use of intelligent methods in the inquiries involved in the reconstruction of experience.

IMPLICATIONS FOR ETHICAL THEORY

The search for some ultimate good or end has been the chief business of ethical theory. Scientific thinking has undermined this conception, for now goods and ends have obviously increased. Final laws have become principles and principles have become methods of thinking. In all of the moral concepts, the common element has been the Final Good. Dewey does not bother to uproot this idea at all, since, as he points out, natural science has already taken care of this ancient and mistaken notion. The problem of morality is now to be subjected to intelligence, and responsibility is located, not destroyed. Each situation where judgment and choice is necessary before action can be taken is the moral situation.

> "Wide sympathy, keen sensitiveness, persistence in the face of the disagreeable, balance of interests enabling us to undertake the work of analysis and decision intelligently are the distinctively moral traits—the virtues or moral excellencies." [14]

Judgments made concerning the acts of a man cannot be applied by rote from the textbooks of noted logicians, because action is specific and the judgment as to an action must be specific. Moral values only exist in a situation where some action must take place. Evils or deficiencies existing in the situation are revealed by the necessity for action. The good inherent is not imposed from above, but must be discovered in determining just what must be done to correct the limitations of the situation. There is intellectual value in what has been obtained from other situations, that is, generalized notions of good, but they must be recognized as simply the tools of insight that can be used in individual response to individual situations. In this light the problem of evil is removed from the jealous hands of the theologians and becomes the practical problem of dealing with the evils of life.

IMPLICATIONS FOR SOCIAL PHILOSOPHY

Since John Dewey is happily concerned with man today, it is inevitable that he would concern himself with what philosophic change has meant to social philosophy. Since every view and organization of society seems to have already been generated by man's fertile mind,

> "We plunge into the heart of the matter, by asserting that these various theories suffer from a common defect. They are all committed to the logic of general notions under which specific situations are to be brought. What we want light upon is this or that group of individuals, this or that concrete human being, this or that special institution or social arrangement." [15]

Too often, these general notions are used to hide the defects of the particular situation, human being, or group. The explanations for particulars are found in the general notions. A Negro in the Southern states is treated in the same manner as a white man because the United States of America is a Democracy. *Reconstruction*

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[14] *Ibid.*, p. 133.

[15] *Ibid.*, p. 149.

in Philosophy offers the way and the call for reconstruction *in and of* society. Society for Dewey is not a single organization, but association for the realization on a higher plane of all experience. Organization is not an end in itself, but a means of promoting association.

> "The increasing acknowledgment that goods exist and endure only through being communicated and that association is the means of conjoint sharing lies back of the modern sense of humanity and democracy." [16]

Society now becomes a process, a process in which values, ideas, experiences and emotions are made common through association. In the past, individuals and societies have been fixed concepts, and out of this has grown the arguments, polemics which reflect this untenable position, over law and freedom. It has been argued that freedom is detrimental to society, but useful for individuality. Dewey clarifies this by suggesting that a society is only strong when all of its members can function to the limit of their capacity. A society's growth is dependent upon the new resources at hand. Since these new resources are in the capacities of its individuals, it is important to note the meaning of Freedom. Freedom for the individual is growth, the release of a capacity from any hindrances. Every personality must be educated, and this education is only possible in a social group when every person, to the limit of his capacity, has a responsible share in determining its aims and policies. This is the central fact in Dewey's conception of democracy.

> "When the liberation of capacity no longer seem a menace to organization and established institutions–something that cannot be avoided practically and yet something that is a threat to the conservation of the most precious values of the past; when the liberating of human capacity operates as a socially creative force, art will not be a luxury, a stranger to the daily occupation of making a living. Making a living, economically speaking, will be at one with making a life that is worth living. And when the emotional force, the mystic force one might say, of communication, of the miracle of shared life and shared experience, is spontaneously felt, the hardness and crudeness of contemporary life will be bathed in the light that never was on land or sea." [17]

John Dewey has helped disenthrall philosophic thought from the ambiguities and quibblings of the past and made it relevant to the needs of today. The problems of traditional philosophy have not been problems at all. They are pseudo-problems, and could not be solved even in their own terms. In helping philosophy tear itself away from the contemplation of its own navel, Dewey urged that its task is "to clarify men's ideas as to the social and moral strifes of their own day." This is a challenge requiring courage, and is the formulation of a theory of inquiry that may aid in cutting through intellectual confusion to a base for action. In challenging philosophers to confront directly the major problems and beliefs of our society, John Dewey points toward a reasonable path for philosophic man in our time. □

[16] *Ibid.*, p. 160.
[17] *Ibid.*, p. 163.

EXISTENTIALISM AND EDUCATION

A COLLABORATIVE ESSAY

EXPLORATION OF INTELLECTUAL FRONTIERS for the purpose of determining their possible importance to the work of the schools is a task which can never be ignored if educational theory and practice are to keep pace with scholarship and research in other fields. Existentialism is such a frontier, but thus far largely a neglected one. The present essay is an initial effort to overcome this neglect, but to do so by an experimentally co-operative method: each of the four sections to follow was written, criticized, and revised by a team of young philosopher-explorers. While it therefore lacks perhaps the tight coherence or consistency of thought and style that such an essay should possess if written by a single person, by that very fact it dramatizes something of the character of existentialism itself. For the latter, too, is peculiarly fluid, boundless, even loose in its typical formulations. Not only do leading existentialists differ at numerous points; every existentialist often differs with himself. Indeed, it was Sören Kierkegaard who first made internal differences, even inconsistencies and contradictions, indigenous to his thought, as one of his most famous works, *Either/Or*, amply testifies.

Nor are the authors of this essay too distressed over its disregard of certain differences prevailing among themselves as to the meaning or significance of existentialism. Again, like its own exponents, they are here less concerned to reach unanimity on all issues than to indicate something of its importance, of its weaknesses and its strengths, and finally of its possible implications for the everyday teacher and student. In this objective, it has been necessary to omit many interesting features of existentialism, and to suggest only by references to other commentators that much more could be said about a theory that has caused such wide repercussions, particularly in Europe but even to some degree in America, during the past few years.

I. EXISTENTIALISM DEFINED

The exact termini of a currently developing philosophy are delineated only with great difficulty. Such is particularly the case with existentialism. Any attempt at definition, then, must indicate the dialetical and many-sided nature of our subject.

With this caution in mind, we may state that there is a common element or denominator in all existential philosophers, from Ecclesiastes of the Old Testa-

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ment to the contemporary atheistic existentialists of the Paris school. To borrow a phrase from Paul Tillich, all have sought to find their "relation to the ground and meaning of existence." This is what Tillich has called *ultimate concern.*

In the history of philosophy, the concern with the ultimate, the distinguishing mood of existentialism, is unique. Let us contrast it, by way of illustration, with the mood of natural science and idealism.

At about the same time that Pascal reflected on the ultimate nature of the world in relation to his own introspective sense of astonishment and fear towards "the silences of those infinite spaces," Galileo, looking out at those spaces through a telescope, was not so much personally concerned as he was impressed by his discoveries and their possible uses. Pascal's concern, at this point, being existential, was turned inward. Galileo's concern turned outward, and indicated the direction of natural science. Here is where scientist took one path, philosopher another.

Classical idealist philosophers from Plato to Hegel exhibited, in a sense, this ultimate concern, but only in their confidence that, while they were concerned with the ultimate, the ultimate was also concerned with them. This view gave them not only security but also an ultimate sanction for their existence. Here is where Kierkegaard separated from Hegel. The latter considered himself hand-in-glove with the universe. The former wondered if the obligation was mutual.

The distinctive mood of ultimate concern gives rise to the use of such substantives as "despair," "anxiety," "anguish," even "nausea"—a vocabulary strange to typical contemporary philosophic discussion. This language, so characteristic of all existential literature, has its reason for being in the fundamental concepts of estrangement and tension. The individual is conceived as existing always in a situation, trying to create meaning within the context of his life. He comes to consciousness of himself in a world which he himself has not made. His attempt to fix reality in this world is doomed to failure, thereby throwing him back upon himself and producing the pervasive feeling of anxiety. It is only in existence that man creates his own essence.

This emphasis on the existent is in sharp contrast to the traditional task of philosophy, especially academic philosophy, which was to find the essence above the limiting context of the individual. The metaphysical philosophies sought to formulate truths valid for all time and for every person. All phenomena were considered explainable in terms of the working of universal laws. In such a system one found certainty in the rationale of the totality, in the objectivity of logic, in the feeling that one's actions are measurable by standards outside of one's self.

In opposition to the philosophy of the system, as represented by Hegel, Kierkegaard affirmed the truth of subjectivity. To live by universal laws was to commit spiritual suicide, he maintained, for what has the abstract man to do with the individual? Himself wracked by doubts so intense as to make his existence almost unbearable, Kierkegaard nevertheless insisted that reality, for him, lay in the unrelieved tensions and irreconcilable contradictions of his consciousness.

Haecker, as quoted by Bretall, makes Kirkegaard's opposition to the older philosophies clear:

"European philosophy . . . proceeds from the world through the person, who is but an empty relative point, back to the world; it goes from the objects, things, sensations . . . , passing as quickly as possible over the subject, the self, the individual, back to the objects, things, and sensations . . . . Kierkegaard does not follow this age-old development, because he aims at something higher. He wishes to reverse the order and the procedure for both philosophy and thought. He wishes to go from the person over the things to the person, and not from the things over the person to the things . . . ." [1]

The devaluation of the objective world is of key importance in existentialist philosophy. Attention is directed to the meaninglessness of most human activities and the complete negation of meaning in the ultimate contingent, death. The everyday self-deceiving manner of existence with its artificial absorption in externalities conceals the tragic terror of the individual's loneliness, often even from himself.

Only at certain moments do we encounter the self—the moments of anguish when a sudden flash reveals the sickening emptiness of our routine lives, the moments of forlornness when we realize that we *are* without finding any reason for being. It is here, at the point where the individual recognizes his authentic self, that the possibility emerges for authentic living. In the dread with which he faces his own annihilation (Heidegger), in the dilemma in which he feels torn apart by tensions and contradictions (Kierkegaard), the condition is ripe for existentialist action, whether it be the "leap to faith" or (as in Sartre) the free resolve to create new values without the comfort of divine sanction.

The way to existentialist truth is attainable through the passion with which one holds to an object. This perception of the true nature of the self and his world is only possible in a state of involvement, that condition of intensity which Jaspers calls the "boundary state." There is a central ethical notion implied in the making of a choice, the notion of freedom. Man is free to choose, but each decision, since it is made without recourse to an already-determined system, entails a risk. In each choice he chooses himself, thereby taking his destiny into his own hands and assuming complete responsibility for his actions. "Man is condemned to be free," as Sartre tells us, and deep dread accompanies the awareness of that destiny.

The choice, according to Kierkegaard, is achieved in a supreme "moment" when one embraces Christian faith in an experience which transcends the ordinary events of life. The essence of the moment is a passionate risking of everything for the sake of something inaccessible to reason. The content of faith is absurd and paradoxical; but then, nothing except the absurd and paradoxical can be existentially relevant. Whatever is logical and reasonable is necessarily abstract and neutral with regard to existential questions.

To the atheists, however, man is thrown into this world without recourse even to a God which cannot exist. Sartre says:

"The existentialist . . . thinks it very distressing that God does not exist, because all possibility of finding values in a heaven of ideas disappears along with Him; there can no longer be an *a priori* Good, since there is no infinite and perfect consciousness to think it. Nowhere is it written that the Good exists, that we must be honest, that we must not lie; because the fact is we are on a plane where there are

[1] Bretall, Robert (Ed.), *A Kierkegaard Anthology*, p. 192.

only men . . . Indeed, everything is permissible if God does not exist, and as a result man is forlorn, because neither within him nor without does he find anything to cling to. He can't start making excuses for himself." [2]

Although this sharp cleavage over religion points to real differences among the existential philosophers, a common motivation unites figures as diverse as Kierkegaard, Jaspers, Marcel, Heidegger, and Sartre. It is the existential mood of ultimate concern, as has been previously mentioned, which makes for such a strange comradery. All ask the same questions because all are troubled in the same way.

The dominant mood is frequently negative. Existentialism begins with the feeling of anguish that arises in the human breast as the individual recognizes his essential aloneness in an indifferent universe. He sees himself as a feeble spark which, momentarily, may be snuffed into nothingness. Where is he to turn for refuge? With what is this spark of consciousness, so desperate in its need for the warmth of love, to identify itself?

Answers to these questions, existentialists agree, are to be arrived at through the instrumentality of the will with its capacity to make choices. Man cannot find meanings; he must make them. Values are created by the free man—created every time he acts to realize the conception he has forged of himself.

Therefore, contrary to what may be inferred from the bleakness of man's situation, the existential philosophy, as propounded by its leaders, is positive. For man *can* face himself realistically; he *does* possess the inner strength to stand up to his destiny without flinching. By focusing attention on the imminence of death, the philosophy of existence heightens, and therefore affirms, life. By emphasing the worthlessness of objective value, it directs us towards authentic existence.

Here, then, are the kind of questions asked and answered by existentialism. Since the philosophy is still in the process of growth, more conclusive answers and more precise definitions must be reserved for the future. Meanwhile, we are entitled to examine it as critically as possible, in its negative as well as positive aspects. We shall now give successive attention to both aspects, with main regard for the oldest and youngest of the great modern existentialists: Kierkegaard and Sartre.

II. A CRITICISM OF EXISTENTIALISM

Although existentialism is much in vogue in our day, and although it appears to have a certain relevance and validity, particularly in a time of political revolution and social crisis,[3] we believe that it is also characterized by certain weaknesses of argument and of spirit. The weaknesses of argument may be due partly to the fact, already noted, that it is not a closed and completed system but rather an evolving and changing pattern. Any weakness of spirit may be traceable perhaps to the environment in which existentialism takes root and flourishes, whether the environment be that of a mind morbidly introspective and preoccupied with

[2] Sartre, Jean-Paul, *Existentialism,* pp. 26-27.

[3] Grene finds in existentialism "a brilliant statement of the tragic dilemma if not of man, at least of man in our time." Grene, Marjorie, *Dreadful Freedom, A Critique of Existentialism,* p. 14.

itself, or of a diseased society in which the very existence of the oppressed in the face of torture and death produces an unwholesome if not an abnormal outlook on life.

Let us sample, first of all, some of the weaknesses of *argument* in existentialism.

We have said that existentialism is part of the revolt against the "misplaced concreteness" of philosophers like Hegel who tried to find reality in a rational and abstract system. Descartes' *cogito ergo sum* becomes equivalent to "the moment a man becomes aware of himself." This, in turn, is regarded as the only certain truth and is taken as the point of departure for the rest of the theory. But we may ask whether existentialism's pre-occupation with self-consciousness as the pivot of existence is soundly based upon what is now known of man scientifically in his individual and social relationships. Is this single-truth claim the best answer to the problem of man and his knowing?

Existing human beings, may, to be sure, regard the problems they face as being individual, even as different from those that any other human being ever will encounter. Nevertheless, such problems must be put in a meaningful manner if other beings are to comprehend them, and the degree of comprehension depends upon the purpose of the communicator, the method of communication, and the personality of the receiver as well as the giver of the communication. Thus two modes of existence can be postulated: the immediate apprehension of oneself—of one's senses, including 'feeling tone' and 'thinking within'—and the world of other selves. The existentialist cannot answer satisfactorily why one is 'more real' than the other, 'better' than the other, or why they cannot co-exist.

Sartre himself recognizes that "one discovers in the *cogito* not only himself, but others . . . he perceives them as the condition of his own existence. He realizes that he cannot be anything . . . unless others recognize it as such."[4] Here Sartre leaps from subjectivity to intersubjectivity, and thus implies not only an epistemology but a social psychology. But, having made the implication, he leaves it unexamined.

Another dubious argument of existentialism is its presumed opposition to materialisms. Says Sartre: existentialism is the only theory "which gives man dignity, the only one which does not reduce him to an object. The effect of all materialism is to treat all men . . . as objects, that is, as an assemblage of determined reactions in no way distinguished from the ensemble of qualities and phenomena which constitute a table or a chair or a stone."

The difficulty here, at least partly, is the result of insufficiently distinguishing among materialisms. If he is talking about mechanistic materialism, he is not talking about the newer organic materialists, the gestalt psychologists, the biochemists, and others who would surely insist that man's "dignity" is not deprecated by scientific research into his individual and social nature.

Nor should we overlook certain difficulties in the existentialist insistence upon freedom of choice. Nowhere do its advocates consider the effects of social,

[4] Sartre, *op. cit.*, p. 44.

psychological, and anthropological heredity upon choice; or how choice No. 1 affects choice No. 2, choice No. 2 affects choice No. 3, and so on.

The philosophical "system" of existentialism resorts more to faith than to logic. As Kierkegaard insisted, the leap to faith must be made—a faith which, though not always consistently, tends to deny human progress or ontological purpose. But the corollary of this neutralism is not, necessarily, the feeling of futility which some expressions of this philosophy invite. Cannot man's efforts be applied towards an examination of the universe if for no other reason than to give meaning to man's efforts? Recognition of one's finitude could be the challenge to conquer the controllable aspects of our mortal existence. He who would master the environment must, even if incompletely, master himself; but this can hardly be achieved through an exaggerated preoccupation with one's aloneness.

Existentialism appears to be characterized by lack of concern with tests of verifiability. It tends, for example, to disregard the findings of cultural anthropology. We may well ask, therefore, whether the "crisis psychology" emphasized by existentialism constitutes an adequate basis for a life philosophy, or whether its insights should not be critically evaluated in terms of the social situations which produce them.

Let us now consider briefly the *spirit* of existentialism. As already implied, its weakness of spirit is rooted mainly in its hyper-individualism. The devious concept of the individual held by modern exponents can be questioned on at least three interrelated grounds:

(1) The excessive stress upon inwardness or subjectivity is epitomized by Kierkegaard:

> "Objectively the interest is focused merely on the thought-content, subjectively on the inwardness. At its maximum this inward 'how' is the passion of the infinite, and the passion of the infinite is the truth. But the passion of the infinite is precisely subjectivity, and thus subjectivity becomes the truth." [5]

"It is impossible," according to Sartre, "for man to transcend human subjectivity," and this is "the essential meaning of existentialism."[6] Again, "There is no universe other than a human universe, the universe of human subjectivity."[7]

Such exaggerated emphasis upon subjectivity may lead the individual to morbid introspection and dubious self-analysis. The practical consequence would be the retirement of the individual into a kind of self-enclosed existence. Existentialism is capsulated. Complete within itself, there is little attempt to seek objective criteria for its postulates. The individual's too personal involvement in the present moment and the given situation may encourage withdrawal from the social situation, without which he can neither serve nor survive.

(2) Closely allied to the first difficulty is existentialism's rejection of all absolutes outside the self. "Not only is man what he conceives himself to be," says Sartre, "but he is also only what he wills himself to be after this thrust toward existence."[8]

[5] Bretall, *op. cit.*, p. 214.
[6] Sartre, *op. cit.*, p. 20.
[7] *Ibid.*, p. 60.
[8] *Ibid.*, p. 18.

"Man is nothing else than his plan; he exists only to the extent that he fulfills himself; he is therefore nothing else than the ensemble of his acts, nothing else than his life . . . . A man is involved in life, leaves his impress on it, and outside of that there is nothing. . . . What we mean is that man is nothing else than a series of undertakings, that he is the sum, the organization, the ensemble of the relationships which make up these undertakings." [9]

We see here again a tendency to set man adrift in a universe without meaning. But man is dependent, contingent, and social, and he appears to be less than man if his own subjectivity is made the absolute norm of existence. Can existence have meaning apart from other selves or apart from the universe?

(3) Existentialism exaggerates the loneliness or forlornness of the individual. According to Sartre, by forlornness "we mean only that God does not exist and that we have to face all the consequences of this . . . . man is forlorn, because neither within him nor without does he find anything to cling to."[10]

Such excessive stress upon man in his aloneness tends to isolate human personality and inclines the individual toward despair and frustration. Man has built a consciousness of his own worthwhileness, not through a sense of isolation, but through a sense of union and communion with a world larger than himself. He has made progress in science and the arts and in all social living, not through his aloneness, but through the realization and implementation of togetherness.

An exaggerated sense of man's loneliness in the midst of crisis may be the understandable consequence of oppression, as in the period when France was occupied by Hitler. But, as Sartre himself recognizes in certain of his moods, what is needed above all else today is an adequate and dynamic spirit of community, whereby the individual shall see himself in his social situation and shall commit himself to the purposes of a humanity struggling for an era of abundance and peace. In short, while its emphasis upon the importance of the existing individual and his responsibility for choice is significant, the spirit of existentialism suffers from such over-balances as we have tried to illustrate. What, then, can be claimed of a more constructive and positive character?

III. Constructive Values in Existentialism

We have seen that existentialism, as expressed especially by Kierkegaard and Sartre, appears to derive from a profound sense of crisis. For this reason, at least, it must be heeded by those concerned with the dislocations of our time. Whether the source be isolated personal crisis, as in Kierkegaard, [11] or the necessity of preserving individuality under oppression, as in Sartre, one finds in existentialism a cry against complacency and a demand for commitment to which persons sensitive to the scope of modern conflict must respond.

The sickness of our day has been attributed in part by Fromm, Dollard, and others to aloneness, to the feeling of meaninglessness symbolized by the "lonely crowd." A return to religion and to a variety of orthodoxies has reflected this mood. The need to "find oneself" or "define oneself," as Sartre would say, seems to be urgent and widespread. We find expressed by artists as well as social

[9] *Ibid.*, pp. 37-39.
[10] *Ibid.*, pp. 25-27.
[11] Cf. *Either/Or* and *Sickness Unto Death.*

scientists the desire to become more than a cypher, more than cliché or stereotype. Existentialism expresses such yearnings in a dramatic fashion. Here, surely, is one reason for the expanding interest in what it has to say.

To some, Kierkegaard's concept of the religious experience is equally significant. His "passion for the infinite," his insistence on the "God-relationship," on breaking through sham and hypocrisy to the ground of belief, provides one justification for a return to faith in terms of what is most vital in human personality.

To others—those who do not follow the religious variety of existentialism—different values emerge. Do Kierkegaard and Sartre suggest other possible answers to the longing so crucial to their philosophy? Take, for example, their stress upon "subjectivity." It was noted that Kierkegaard arrives at the concept in his discussion of truth, which he finds in a subject's relationship to what he thinks, not in something antecedent or objectively given. Sartre, too, is concerned with the free subject, not the passive creature of externally determined forces. This suggests to us a valid emphasis on the importance of the unrational in knowing and becoming, a plea for fuller integration of the private and public worlds, of irrational strivings and rational demands.

Kierkegaard writes that a truth must be significant for the individual, must be taken up in his life. Sartre thinks of understanding as deriving from total involvement in situations. Both emphasize, not only the psychological importance of "passion," but the relationship between passion and valid knowledge itself. This may enrich the experimentalist concept of knowledge by participation, and heighten our sensitivity to the role of wanting, desire, and goal-seeking in the knowing activity.

Moreover, existentialism's protest against sterile abstractions, against pure logic and objective absolutes, its distrust of arid speculation and intellectualism, may well supplement and deepen the rationalist and experimentalist protest. The crucial emphasis on responsibility derives from it, first of all. If the universe is impersonal and neutral, man must shoulder an inexorable responsibility for his own future. Even Kierkegaard's feeling of nothingness, his insistence on self-sacrifice, suggests man's solemn responsibility. Man has, as Sartre points out, no excuses. Ultimately, he cannot depend on powers outside of himself for the solution of his problems or the fulfillment of his wants. Out of this realization comes what Sartre calls anguish, the kind of despair that sent Kierkegaard, borne by paradox, back to the absolute, but which leads to a different type of projection in Sartre—a projection into a kind of human universality, a kind of Kantian imperative which includes, eventually, all men. ". . . I am responsible for myself and for everyone else," writes Sartre. "I am creating a certain image of man of my own choosing. In choosing myself, I choose man."[12] In discussing anguish, he points out that "the man who involves himself and who realizes that he is not only the person he chooses to be, but also a law-maker who is, at the same time, choosing all mankind as well as himself, can not help escape the feeling of his total and deep responsibility."[13]

[12] Sartre, *op. cit.*, p. 21.
[13] *Ibid.*, p. 22.

Man is a series of undertakings, an organization of relationships: "he exists only to the extent that he fulfills himself . . . ."[14] We take this to mean that man is what he does, what he wants, what he hopes for. Even as we have recognized the existentialist failure to cope with the facts of human culture, communication, and association, we cannot help but respond to its insights into the nature of striving, aspiring, responsible man. Man defining himself is actually man realizing himself. The end is not fixed in advance; the aesthetic and the creative are made implicit in experience, in the process of self-realization.

Again, though we have pointed out certain exaggerations in the existentialist's view of individuality, let us not overlook its tremendous concern with the worth of individuality. Writes Kierkegaard,

> "A public is everything and nothing, the most dangerous of all powers and the most insignificant: one can speak to a whole nation in the name of the public and still the public will be less than a single real man, however unimportant. The qualification 'public' is produced by the deceptive juggling of an age of reflection, which makes it appear flattering to the individual, who in this way can arrogate to himself this monster in comparison with which concrete realities seem poor. The public is the fairy story of an age of understanding, which in imagination makes the individual into something even greater than a king above his people; but the public is also a gruesome abstraction through which the individual will receive his religious formation—or sink." [15]

We take this as an example of the existentialist's legitimate insistence that the individual must not become a "thing," must not be submerged in an abstract and stifling mass. The importance of group relationships and group dynamics makes this insight doubly important, since the productiveness of groups depends in large measure on the productiveness and creativeness of their members. Both Kierkegaard and Sartre speak of the need for self-acceptance, of love for one's neighbor depending upon love for one's self. Kierkegaard writes: "Therefore when we are told: 'Thou shalt love thy neighbor as thyself,' then this statement contains *the presupposition that every man loves himself*."[16] This seems to us to relate to the insights of modern psychiatry, which recognizes the continuity between full function of the individual and the freedom of his relationships to others. When Fromm defines productivity as a mode of relatedness, it seems to us that the existentialist emphasis on freedom in and through action, on individuality in and through striving, on individual responsibility, is relevant to this definition.

The existentialist awareness of the dichotomy between what is and what might be stems from the rejection of absolutes as well as from a concern with individual responsibility. It is this awareness which makes men forlorn, which makes life tragic for so many. It may, however, be the motive force also for action, for renewal, for the achievement of what might be. Even Kierkegaard's tortuous paradoxes suggest this fulfillment. "What then, in reality, is a value," asks Sartre, "if not the call of that which is not yet?"[17] This indicates a pronounced future-centering in existentialism—a non-Platonic insistence (at least in Sartre) that man forge out his own future, that he create himself, and that in his own creative choosing he choose for all men. In view of the profound need in our day for the articulation of goals, for a sense of direction, this is a constructive view.

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[14] *Ibid.*, p. 38.
[15] Bretall, *op. cit.*, p. 267.
[16] *Ibid.*, p. 284 (italics in original). Cf. Grene, *op. cit.*, p. 39
[17] Quoted by Grene, *op. cit.*, p. 8.

We have considered, then, the existentialist's concern for commitment, for self-realization, for creativity, and for social direction and responsibility, as among his more positive contributions in terms of life as a whole. Our final task is to consider how these and other features of existentialism may be of direct importance to educational theory and practice.

IV. IMPLICATIONS OF EXISTENTIALISM FOR EDUCATION

One way to recapitulate and reorganize the various aspects of existentialism presented thus far would be to consider them under three traditional categories of philosophy: (1) reality, (2) knowledge, and (3) value. Implications of existentialism for education may then be considered within each category in turn.

(1) We reiterate that, for the existentialist, what is important is the particular situation. He is concerned with the subjective present. He can be sure of no eternity or purpose in the universe except insofar as the individual's drive to establish his subjectivity may be considered purposive. For Kierkegaard this drive is toward God; for Sartre it is not, but it seems almost a biological necessity. In this framework, man is free—his freedom being circumscribed only by limits of the particular situation in which he finds himself, not by any metaphysical chains either within himself or within the world.

The teacher who accepts such a theory of reality could, to begin with, encourage his students to emphasize their present experience. With knowledge a living thing, the past is not used as a criterion for the present because it is being constantly transcended. Each day history is being made by man himself. The future is shaped out of the present.

Furthermore, the student is encouraged to develop self-reliance within this situation, to have his own convictions and to be master of them. Thereby the teacher seeks to create a citizen who denies complacency because he meets existence head on, because he refuses to turn his back upon it with a "What can I do?"

Kierkegaard discusses such self-projection as a leap to God, but the humanist could interpret this just as well as a leap to man. "God" may represent the source of all men He has created, or He may represent the highest possible *human* reality in a non-transcendent sense. Thus the leap could be interpreted as a leap to the highest known actuality.

In short, existentialism in its theory of reality reveals something of its paradoxical quality: existence is something first to be accepted with all its dreadful and overwhelming presence if the self is to succeed in becoming strong enough to face reality squarely and forthrightly. The teacher's task here is to convey the meaning of this paradox.

(2) Turning to the existentialist theory of knowledge, the first implication that emerges from our preceding interpretation is that responsibility for knowledge rests with the individual.

In other words, existentialist knowledge results from what exists in the individual's consciousness and feelings as a result of his acts. In this sense, the individual originates and structures his own knowledge, and any validity it possesses is finally due to him. This implies also that the good teacher does not

develop in the student a desire to form exclusively rational generalizations, but encourages also the attitude that all particular situations are different and must be analyzed in terms of both rational and unrational factors.

The emphasis on internal responsibility and on self-creation shows that unity and continuity come as a result of self-initiated acts of self-creation. If man exists only to the extent that he fulfills himself, then rejection of a convictionless *status quo* for an individually effective action is the means to one's own knowledge. The human will provides the dynamic: it is the connecting thread through the acts whereby man creates himself. The importance of individual will as impetus for learning has been recognized in many areas of education—for example, in Dewey's conception of "interest and effort." The existentialist belief that individual continuity comes as a result of self-initiated acts of self-creation might enrich this conception in its educational bearings. The core curriculum is one methodological approach to such continuity.

Consider now another possible inference from the theory of knowledge. We recall that the existentialist speaks out of a profound sense of crisis—that existence is met through crisis. There is cathartic value in overcoming despair through action—in achieving existence through our chosen acts. Can this notion be raised from the level of the subjective to effective group action? Kierkegaard rejected "comfortable Christianity" and romantic immediacy; he realized fully the stark reality of his lonely, despairing condition. Today we need to reject superficial escapes from crisis and look within ourselves to achieve some of the strength necessary to overcome chaos, a need that could apply just as well to group awareness as to individual awareness. Group therapy through "subjective" analysis of group intra-relations can strengthen its own existential effectiveness. Sartre, particularly, opens the door to this possibility when he merges his subjective responsibility for decision and self-creation into a relationship with others through the Resistance movement. The existentialist student alone, and in a "movement," would thus appear to have taken two steps on the way toward effective group action. He will have abandoned acquiescence and immediacy for action and the long-range view.

In summary, the implications to be drawn from existentialism's theory of knowledge for education indicate that the origin, structure, method and validity of what is learned depend on the learner. The stable, secure learner or teacher stands on his convictions and his freely chosen actions. In accepting responsibility, he no longer remains the puppet whose strings are pulled by authoritarian higher-ups.

(3) To the existentialist, values are not apart from nor do they exist before action. Good is an abstraction from the empirical acts of men; it is no Platonic essence. A standard of value is to be found in the existentialist concept of freedom. We determine values by our free decisions. Consequently, the highest morality is a recognition of freedom. To hide this truth from ourselves, to degrade ourselves by making ourselves things or objects before our own consciousness, is the lowest immorality.

For Sartre, when a man chooses in freedom he cannot really choose evil.[18]

[18] Cf. Sartre, *op. cit.*, p. 20.

This is so because to choose in freedom means a creative choice. Man chooses according to a pattern of what he wants all men to be. So he must choose good in the sense that he is "affirming a value" in the thing that he chooses. Evil results, accordingly, when one hides his freedom from himself, refusing to recognize that his choices are creative and responsible. For Kierkegaard, too, we can choose the good only insofar as we choose to make the leap to decision and commitment. Thus in both men, the good is the positive affirmation of our subjectivity and all that it entails. In both, it involves utmost exertion of the will. It recognizes that the individual must face that fact that he is finally alone, and that he can make his decisions alone. Here again responsibility becomes of paramount value.

This value theory has strong implications for education, no less than the theory of reality and knowledge. Since individual experience is the keynote, it rests with the educator to provide as much opportunity as possible for the individual to realize himself in particular situations. He must be helped to see the implications of his decisions in any action. Existentialism is a tough-minded philosophy: it is impatient with parents and professional educators who shield the student from experiences that might provide insight into himself. He must learn that he cannot excuse his weaknesses on the basis of environment, bad advice, or "human nature." He is alone responsible for what he makes of himself. Whether before himself or before God, either way he finally stands alone. This aloneness is a terrible thing, but there is no escaping it. The educator must see that the student recognizes this inevitability. Such recognition is good.

The present emphasis on group action in education should not cause us to lose sight of the role of the individual in such action. How subjective we can become and still logically maintain cohesive group relationships is a problem that existentialism challenges us to examine. Although, as our earlier criticisms indicated, subjectivity is over-stressed at the expense of an adequate and wholesome sense of community, a revaluation of the place of the subjective may be in order if we wish to base group experience and action upon the maximum of meaning and value of its constituent members.

Existentialism lacks a satisfactory value theory in failing to provide criteria of a social and objective character. Neverthless we might benefit by existential insights in building such criteria. Far too often educators present their own pet standards of value to the student in hopes that enough repetition will inculcate acceptance of them. While one may question the extent to which the individual creates values by the act of free choice, we cannot too often stress the necessity of every individual affirming or rejecting pre-existing and ready-made values. The war against moral hypocrisy that Kierkegaard initiated and Sarte carries forward should become the private war of every educator concerned to build self-reliance and self-respect in young citizens on the threshold of maturity.

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THE EXTENSIONAL LIMITS OF ARISTOTELIAN LOGIC

BY EARL C. CUNNINGHAM

Statement of Problem

BETWEEN THE YEARS 1255-1265 A. D., Thomas Aquinas wrote his famous *Summa contra gentiles*. This treatise did not emerge out of a vacuum.

The Arabs had moved westward across northern Africa into Spain and the islands of the Western Mediterranean, bringing with them advanced notions in medicine, mathematics, and the sciences. They were also assiduous students of classical Greek culture. Their migrating into Western Europe posed a novel and disturbing problem to the Church: From Augustine to Aquinas the Church had been able to win allegiances to its teachings through authoritarian dogmas and appeals to divine revelation as given in its holy scriptures. But the Arabs were not willing to accept the kinds of evidence the Church had depended on for so many centuries. And thus the Church was forced to explore the field for types of evidence that would be equally coercive to belief with peoples who operated on different presuppositions.

Now Aquinas was a devoted student of Aristotle, as were the Arabs, and Aquinas believed that Aristotle's logic was a universal and necessary way of knowing—a point of view, incidentally, shared by the Arabs. The *Summa contra gentiles* was Thomas' answer to the need of the Church. It was couched in the universal language of Aristotelian logic—a dialectic that was thought to be coercive over all men who sought *rational* answers. It was not *a* way toward rational belief, but *the* way.

It is this common belief in the ultimacy of Aristotelian logic shared by most intellectuals throughout Western thought subsequent to Aristotle, that occasions this paper. If mathematics became "the queen of the sciences," logic became the queen of all rational discourse: Men could ignore the conclusions of logic and set them aside for arbitrary reasons, but they could *not* deny the "rightness" of the answers given by logical method, nor her absolute authority to give these answers. . . .

Looking backward from the perspective of *now*, not many decades separate us from the absoluteness of Aristotle's logic of inquiry. In many areas of our intellectual life his authority is still supreme. There is, however, an increasing frequency of labor pains to indicate that a new non-Aristotelian method of logical inquiry is coming to birth.

Among the professional duties of the writer, the teaching of Aristotelian logic is considered one of his most satisfying. His background is not unique;

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rather, it is commonplace. He was introduced to logic as *the* normative and necessary mode of thinking. He was taught to share St. Thomas' exalted opinions concerning it. He has consistently used it as a weapon of intellectual coercion—and, fortunately, his opponents have given it the same necessary status: The physical sciences are provisional; the social sciences are comparative and relative; but logic—*logic is absolute.*

But as one teaches one learns. As one analyzes and becomes more facile in handling a subject matter area, one learns both its points of strength and points of weakness. Such experiences serve as the backdrop of this paper. Certain questions were asked, and these questions serve as the grounds for this paper:

One, is Aristotelian logic *necessary* and *universal* as *the* method of rational discourse?

Two, Is there documentary evidence which would indicate answers to the above question?

Three, What implications, if any, are there for a modern philosophy of education?

The following method of development has been selected as that most likely to yield helpful answers to the above questions: Part I is a synoptic statement of Aristotle's theory of development and his epistemology; Part II is a summary development of movements away from Aristotelianism, with some implications; Part III summarizes some observations concerning the extensional limits of Aristotle; and Part IV indicates some implications for a philosophy of education.

PART I

A SYNOPTIC STATEMENT OF ARISTOTLE'S THEORY OF DEVELOPMENT AND WAY OF KNOWING

There will probably be no dissent to the proposition that all of our philosophical, mathematical, physical, and religious systems are erected upon primitive, indefinable axioms or postulates.

The above paragraph represents, synoptically, the grounds upon which our systems of knowledge are erected. Given that congruent figures are equal, that parallel lines extending into infinity will never meet, that a straight line is the shortest distance between two points, etc., and one has the building blocks for Euclidian geometry. Given the proposition, *Cogito Ergo Sum*, the finitude of the human mind, the lesser cannot produce the greater, and one has the building blocks for Cartesianism. Given a perfect world of *Ideas*, a demiurge with a "will" to create, the potential existence of matter, and one has the building blocks for Platonism. Given matter and motion, and one has the foundation stones for various forms of Materialism. Given *Esse est percipi*, and one has entered the "no return" road into solipsism. . . .

Perhaps it was for reasons such as the foregoing that caused Dewey to assert that by changing the way of knowing we change the nature of knowledge. Certainly, the present paper stems from a recognition of the hiatus between the

presuppositions of Aristotelian and non-Aristotelian systems. For this reason it seems helpful to our analysis to review both the philosophy of Aristotle and some selected contentions of these non-Aristotelian systems. In this section attention is directed toward Aristotle.

ARISTOTELIANISM

Reality is a compound of *matter* and *form*. "Matter" is defined as sheer potentiality. As potentiality, it is inert, having no capacity to energize itself. It is characterized as "passive receptivity in the universe," which, when worked upon by *form*, can become actualized.[1] Further, while having no form or essence, and thus escaping understanding, matter is the substratum in which *form* is individualized.[2]

From the point of view of the present analysis, the concept of substance demands primary emphasis. Substance is the Lockean substratum that holds qualities together. According to Aristotle, *qualities reside in substances*, and there are as many substances as there are observable contradictory qualities in any object.[3]

In establishing the proposition that qualities reside in objects, Aristotle appeals to reason and experience. Reason demands that qualities, which are non-corporeal, must reside in *something*, and this something is substance. To assume otherwise is unthinkable. On the other hand, a review of experience reveals that any quality such as redness, hardness, etc., always resides in something. Qualities are never found to be the qualities of nothing.[4] One must posit, then, both from the standpoint of rationality and from experience, the existence of *independent* substances which provide the substrata in which qualities reside.

The point in the above analysis which this study wishes to stress is that, for Aristotle, objects of experience have an *independent* existence and that substance constitutes a substratum which holds qualities. *Both the object and its qualities are independent entities.* Knowing the object—that is, abstracting its *essences* or attributes by the activity of reason—is not in any way *constitutive* of the object. *The object is what it is independently of being known.*[5]

It is of further importance to stress that for Aristotle *qualities of objects are imposed on matter by a hierarchy of forms.* His system of logical classification from the *Infima Species* to *Summum Genus* is built upon the assumption that *form imposes attributes.*

Aristotelian *class terms* are neither arbitrary nor accidental. Classes of things, it may be recalled, are built inductively by extrapolating common properties found in things. Now these properties *belong* to the things by virtue of *form.* Since the world is throughout teleological, *form* causes one type of property rather than another. Since perceptual objects are actualized through the activity

[1] Burtt, E. A., *Types of Religious Philosophy*, p. 54.
[2] Burgess, Joseph, *An Introduction to the History of Philosophy*, p. 120.
[3] *Ibid.*, p. 118.
[4] *Loc. Cit.*
[5] Ross, W. D., *Aristotle*, pp. 137-138. Sensation is described as ". . . the process . . . in which things unlike become like, the sense organ is assimilated to the object. . . ." Still further, ". . . in the absence of percipients objects have a definite qualification in virtue of which they produce sensations when percipients are present. . . ."

of *form* working on matter (potentiality), it follows that qualities and properties are inherent in actualized *things*.[6]

Aristotelian "science," as a methodology, becomes a deductive device of discovering new meanings from general principles which he arrived at by the process of classifying the *essences* of substances. Experience serves only to supply the necessary foundations for the activity of reason. . . . This distinction between Aristotelian science and modern science must never be forgotten.[7]

Aristotle's logic is definitely integrated with his metaphysics. At the apex of his system of forms is Pure Form—apprehended only by the activities of reason. When one finally arrives at the *form* of a thing he knows it, and his knowledge is absolute—not subject either to correction or further verification.

His logic became the systematized instrument by which the mind could deduce from generalized, intellectually intuited propositions, valid particularized concepts. By this deductive procedure Aristotle believed he had an instrument for obtaining universally valid knowledge.[8]

Aristotle's famous *First Figure* syllogism is an example of his method. "All men are mortal" is a universal and necessary judgment; "Socrates is a man" is a particularized statement subsumed under the generalized statement. . . . The function of the conclusion is to determine if the particular statement, which is grounded on experience, is validly related to the universal statement, which is grounded on form and discovered by the activities of the reason. Thus by the valid use of the syllogism Aristotle believed that absolute particularized knowledge was possible by *relating it thru a common term* to universal and necessary judgments.[9]

The classical laws of thought—Contradiction, Identity, and Excluded-middle—were also conceived by Aristotle as primitive indefinables intuitively grasped as self-evident by the active intelligence. The law of contradiction states that A cannot be both A and non-A simultaneously. For example, an object is blue. Now since blueness is a property of substance and residing in substance, it follows that the substratum supporting the color blue cannot at the identical moment support non-blue. Perhaps it was for this reason that Aristotle posited a plurality of substances. Now if the propositions under examination are universal judgments (and one must remember that such judgments are absolutes intuited by the reason) both can be false but only one can be true. If A is A then it cannot be non-A. This is a universal and necessary judgment.

The law of Identity can be expressed formally as follows: A is A. Terms, one of the instruments of thinking and one of the elements into which thoughts can be analyzed, are what they are, i.e., each one is the same with itself. . . . We must have some permanence, some identity of reference, some place to stand to have any thinking whatsoever.

Of Identity, Cunningham writes:[10]

[6] Windelband, W., *History of Ancient Philosophy*, pp. 259, 261-262, 264, 266, 268.
[7] *Ibid.*, pp. 254, 257-259.
[8] Burgess, *Op. Cit.*, pp. 113-114.
[9] Windelband, *Op. Cit.*, pp. 249-251.
[10] Cunningham, H. E., *Textbook of Logic*, p. 38.

It seems that every science, including logic, has what the mathematician calls "invariants." We may say that the invariants of traditional physics are space, time, and mass; of biology, the cell; of religion, the *Logos;* of logic, the laws of thought, one of which is Identity.

The law of Excluded-middle refers to the relation between a term or proposition and its contradictory. There can be no middle ground between contradictories, and when contradictory assertions are made, one must be true, the other false. Both cannot be true.

Attention is directed toward another constituent of Aristotelianism as a locus for future reference—the disjunctive syllogism. Traditionally this has been formulated under "either . . . or" types of propositions. It is closely related to the concepts of Identity, Contradiction, and Excluded-middle. "A" is either dead or alive —to affirm the one is to deny the other, etc. Both cannot be true.

SUMMARY OF ARISTOTLE

Metaphysics

1. The principle of coherency is evident in Aristotle's system of philosophy, i.e., each part is structurally related to the whole in a consistent manner.

2. Aristotle's metaphysics is grounded on the assumptions that within the world-order two *givens* are found: (1) *Form*, which is self-energizing and the cause of all phenomenal manifestations; and (2) *Matter*, which in its primitive form is simply potentiality, or sheer capacity to become, if and when energized by something already actual (Form).

3. From the assumptions found in Paragraph 2, "change" would be defined as a transformation of matter from a potential to an actual (phenomenal) existent.

4. From Paragraphs 2 and 3, it follows that the qualities and properties of existents are caused by the energizing activity of form, and that these qualities and properties are necessary constituents of existing entities. *Common properties* of existents are, therefore, not accidental but *ordered.*

5. It follows, then, that the world-order is teleological in so far as *form* and *change* are concerned. Inferentially, this makes necessary certain kinds of results (effects) rather than other kinds.

Epistemology

1. The purpose of knowledge is to understand the nature of the world. Active reason, operating on the data of sensation, is able to penetrate the phenomenal and arrive at universal and necessary intuitions concerning the Real.

2. These rational intuitions give us the true and absolute pattern of things found in his metaphysics.

3. Now since everything in nature is structurally related in an ascending order from primitive matter to Pure Form (which is perfect rationality), then it follows that the genuine pursuit of knowledge is that of relating particular phenomena (*infima species*) *to more general classes* (*proxima genus*) until one has

achieved the highest level of classification (*summum genus*). This inductive process supplies the data by which the mind is able to intuit *forms* or *universal and necessary* judgments. These universal and necessary judgments become the First Principles upon which the logic of inquiry is grounded.

4. The *modus operandi* is the syllogism—particularly the first or "perfect" figure, in which the major premise is the universal and necessary judgment (described in 3 above); in which the minor premise is a particular instance of the class; and in which the conclusion demonstrates necessary relationship and hence true knowledge.

5. The laws of thought—Contradiction, Identity, and Excluded-middle—are also universal and necessary intuitions. These laws are integrally tied in with his metaphysics.

PART II

SOME DEVELOPMENTS AWAY FROM ARISTOTELIANISM

In order to keep this study within prescribed limits, it is necessary to state these selected developments away from Aristotle in synoptic form.

The developments have been many and varied. This paper makes no pretense that its survey is inclusive. Rather the materials are highly selected and not many in number since the purpose of this analysis is to point out the implication of changes rather than to coerce belief with many examples. The following examples will be drawn only from recent philosophy and from recent developments within the physical sciences.

Recent Philosophy

As was indicated in the introductory statements of this study, the philosophy of Aristotle was a well integrated system in which the parts were mutually dependent. Fundamental to his way of knowing was his metaphysics. Discredit the metaphysics and, *ergo*, one discredits the necessity of his epistemology. The following summary traces some historic steps away from Aristotelian ontology and epistemology.

British Empiricism

John Locke, in his *Essay Concerning the Human Understanding*, makes a distinction between primary and secondary qualities. *Primary* qualities, wrote Locke, such as solidity, extension, figure, motion, rest, etc., reside in the external object. *Secondary* qualities, such as taste, sight, sound, etc., he viewed as subjective to the perceiver and induced in the perceiver by some activity of the external object itself. After Aristotle, he posited a substratum, which he described as "I know not what," as the holder of these primary qualities.

There are two factors in Locke which point away from Aristotle. First, and however rudimentary in form, Locke locates *some* qualities of perception *within the perceiver*. This is strictly opposed to Aristotle who locates qualities as essences or attributes of the external object. Even Aristotle himself would be logi-

cally *coerced* into admitting *not both* the position of Locke and his own position. Both can be false, only one can be true!

In the second place, Locke's system points away from Aristotle in that it casts a shadow of rational doubt on the actual existence of substratum. By implication Locke admits the ephemeral nature of his substratum when he asserts that it is "I know not what."

For motives that were entirely different from those of Locke, Berkeley seized upon the empiricism of Locke and corrected some of its obvious weaknesses. From the viewpoint of the strict empiricist, only those things of the world which can be perceived through the senses can be termed real existents. Berkeley rightly challenged Locke's substratum with the argument that since it escaped perceptual verification it could not be admitted as an existent, but only as a conceptual construct.

Pursuing his arguments still further Berkeley contended that the so-called primary qualities, extension, mass, etc., were as fundamentally subjective as were Locke's secondary qualities. Both were *perceptions*, and since perception is defined as subjective awareness, then both primary and secondary qualities are subjective. From this his famous dictum *Esse est percipi* emerged. To save the objective world from solipsism he posited the mind of God as the "holder" of qualities. Berkeley did not proceed any further in his metaphysics than this.

In reducing both primary and secondary qualities to perceptual existents only, Berkeley goes a step further in destroying the necessary character of Aristotelian metaphysics. Remember that with Aristotle the world is teleological —which means one kind of world instead of another. Now qualities in objects means that purposive forms are realizing themselves in matter. Qualities of objects, then, are not accidents but properties—i.e., necessary constituents. Remember, too, that the object with its properties is likewise an *independent existent* and in no sense constituted or modified by the observer.

Now comes Berkeley and relocates qualities within the perceiver. And since the object itself is but the sum of its qualities, the object becomes purely subjective. Hence the "real" of Aristotle's metaphysics becomes for Berkeley a construct of a knowing mind.

Three propositions follow from the above: (1) Either Berkeley is "right" and Aristotle is wrong or conversely; or (2) Both Berkeley and Aristotle are right; or (3) Both Berkeley and Aristotle are wrong.

On Aristotelian grounds each of these propositions excepting the converse of (1) will destroy the posited necessary character of Aristotelian logic; and by employing Aristotle's own method but *one* exception is necessary to destroy the validity of the converse of proposition (1). . . . And it is argued here that Berkeley's analysis of perception provides the necessary exception.

Following in the empirical tradition it remained for Hume remorselessly to apply logic to its ultimate regarding the nature of objective reality. Berkeley's positing the mind of God as a means of preserving the continuity of the external world was as unjustifiable as Locke's positing a physical substratum. Hume pro-

ceeded to pare off non-empirical concepts until his residue was "bundles of perceptions."

It is significant to note another contribution of Hume regarding the future of Aristotelian logic. Although he was striking directly at St. Thomas in his arguments for the existence of God, he was actually striking at Aristotle, who was the source of St. Thomas' approach: By a rigid analysis of causation Hume forever laid the ghost of necessary causation—and set the stage for *provisional* concepts as found in modern science. It was Hume's contention that nothing must *necessarily* happen—as he expressed it, one cannot be *certain* of an event's taking place in the future until it actually has taken place. . . . By implication, at least, there is present in this argument germinal seeds for the dethronement of Aristotle's logic as a *normative* and *necessary* discipline. Aristotle had said that man *must* think according to his system of logic. God is the perfect Logician; active reason is from God; when man reasons logically, therefore, he is thinking with the same logic as God only less so. Of course such a system of logic is ***universal and necessary in its application.*** From Hume's point of view the validity of Aristotle's logic would be seen somewhat as follows:

Some men *do* use Aristotle's logic; all men *may* use Aristotle's logic. *There is nothing to indicate that it is necessary that all must use Aristotle's logic in order to be logical.*

In non-Aristotelianizing the world of rational discourse, Hume contributed two major things: First, he complemented Berkeley's analysis in reducing substratum and qualities to conceptualized constructs. Second, he reduced the lofty status of Aristotelian logic from that of *the* normative necessary system to just *a* system.

Pragmatism

The knowledge process from the point of view of pragmatism circumvents the question of ontology as it relates to classical philosophy. In the knowing process as developed by pragmatists one discovers at least three fundamental (implicit) assumptions: (1) The "environment" is something different from the perceiver and with which the perceiver is in relation; (2) This relation is not one of disinterested description or analysis but one of psychological involvement; (3) Knowledge is not correspondence between perception and object, but is rather a correspondence between a felt need and its satisfactory resolution.

Experimentalist logic is the antithesis of Aristotelian logic. The former is founded on the assumption that inquiry has as its end the deliberate reconstruction of experience; the latter conceives of inquiry as a method concerned with classifying known existents into necessary forms through the relations of inclusion and exclusion. The former is grounded in experience; the latter is a formalized postulational system grounded on unverifiable indefinables.

Writing on this question Dewey states that:[11]

> Logic is a matter of profound human importance precisely because it is empirically founded and experimentally applied. So considered, the problem of logical theory

[11] Dewey, John, *Reconstruction in Philosophy*, p. 138.

> is none other than the problem of the possibility of the development and employment of intelligent method in inquiries concerned with deliberate reconstruction of experience.

The proving ground for a logic of inquiry does not reside in assumptions of internal consistency or coherency or self-evidency, but rather in the fires of successful experience. The only adequate test for any system of inquiry is the question, Does it enable man more efficiently to control and manipulate his environment in terms of resolving felt needs? Dewey elaborates on this point of view as follows:[12]

> If ideas, meanings, conceptions, notions, theories, systems, are instrumental to an active reorganization of the given environment, to a removal of some specific trouble and perplexity, then the test of their validity and value lies in the accomplishment of this work. If they succeed in their office, they are reliable, sound, valid, good, true. Confirmation, corroboration, verification lie in works, consequences.

In still another context, Dewey discusses the meaning of "logical." In this analysis he throws the logic of experimentalism over against the logic of Aristotle. The latter is a matter of establishing determinate relationships between terms which are either already known, or demonstrating assumed relationships on the ground of presumably self-evident premises. Of experimentalist logic, Dewey writes:[13]

> . . . "Logical" . . . is used . . to denote the systematic case, negative and positive, taken to safeguard reflection so that it may yield the best results under given conditions. . . . In this sense, the word *logical* is synonymous with wide-awake, thorough and careful reflection—thought in its best sense. Reflection is turning a topic over in various aspects and in various lights so that nothing significant about it shall be overlooked. . . . In speaking of reflection, we naturally use the words *weigh, ponder, deliberate*—terms implying a certain delicate and scrupulous balance of things against one another. Closely related terms are *scrutiny, examination, consideration, inspection*. . . . Caution, carefulness, thoroughness, definiteness, exactness, orderliness, methodic arrangement, are, then, the traits by which we mark off the logical from what is random and casual on one side, and from what is academic and formal on the other.

For purposes of the present study one further statement concerning pragmatic theory as it applies to truth or scientific laws is in order. Truth claims are relative and/or provisional. To assert more than this is presumption without verification. In answering the contention of Newtonian physicists that "time" is absolute, Bridgman writes in a vein that is highly consonant with the position of experimentalists in relation to the absolute character of Aristotle's logic.[14]

> Now there is no assurance whatever that there exists in nature anything with properties like those assumed in the definition (Newton's definition of time), and physics, when reduced to concepts of this character, becomes as purely an abstract science and as far removed from reality as the abstract geometry of the mathematicians built on postulates. We do not understand the meaning of absolute time unless we can tell how to determine the absolute time of any concrete event, i.e.,

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[12] *Ibid.*, p. 156.
[13] Dewey, John, *How We Think*, pp. 56-57.
[14] Bridgman, P. W., *The Logic of Modern Physics*, pp. 4-5, 7.

unless we can measure absolute time. Now we merely have to examine any of the possible operations by which we measure time to see that all such operations are relative operations. Therefore the previous statement that absolute time does not exist is replaced by the statement that absolute time is meaningless.

As for the truths of science—pragmatists insist that in point of fact scientific laws are arrived at by pragmatic methods: Since scientific "laws" are universal generalizations, and since such generalizations must include *future* as well as past and present observations, and since it is impossible to assert that "laws" must *necessarily* hold for the future, then it becomes evident that the so-called laws of science are but hypotheses or postulates, validated and corrected by experience. *The only way that experience can be legitimately described is in terms of experience.* Now since experience is provisional, it must follow that laws derived from it are hypothetical in character. Scientific law, asserts the pragmatic relativist, is not a description of the world of nature, *per se*, but is a description of man's interactions with his total environment.

Finally, science, for the pragmatist, is an instrument for the reconstruction of experience—which implies the introduction of novelty, of *new* relationships. Now novelty, or new relationships, or meanings, imply a leap of faith which can be validated only in terms of consequences.[15] For the pragmatist, scientific method is the heart of logical method.

Summary of Pragmatism

Pragmatism strikes head-on into Aristotelian metaphysics by denying the validity of the metaphysical enterprise. The history of powerful movements in recent philosophy and science indicates the impossibility of man's ever being able to know if his descriptions of the world are valid. Since it is impossible to know this, asserts the pragmatist, it is folly to speculate upon its "real" nature.

But if man can't know its "real" nature, there is something that he can learn —he can learn to reconstruct his environment so that it yields some of the things which man conceives and prizes as worthful.

Granting these two propositions: that man cannot know the "real" nature of the world but that he can develop systems which enable him to gain a measure of control over his environment for personal ends, then two corollaries follow: First, the goal of knowledge is not that of arriving at the ultimate *form* of a static thing or existent by a process of classification through *formal* rules of inclusion and exclusion; but rather, and, Second, the goal of knowledge becomes that of shaping the environment optimally to satisfy human needs.

The instruments of Aristotle are the syllogism and other *self-evident* principles. The system of Aristotle is purely postulational and formal. The final test for truth with Aristotle is consistency within the rules of a system. He saw those rules as *necessary* and coercive.

The instruments of pragmatism are observation, controlled research, verification. Formal "truth" must give way to experience. Not what man thinks accord-

[15] Adapted from C. E. M. Joad's *Introduction to Modern Philosophy*, pp. 75, 77.

ing to assumed principles but rather what experience yields as man interacts with his environment.

Pragmatists have wheeled the heaviest weapons of all philosophy against the Aristotelian system—and its shells have not been "duds." Following are some examples:

First, the syllogism: Summarizing what was expressed more fully earlier in this paper, the syllogism was presumed by Aristotle, by the Scholastics, and by some moderns, to yield *new* truth. Schiller gets credit for indicating the untenability of this assumption. Either the conclusion of a syllogism is contained in its premises or it is not. If it is contained therein, the conclusion is a tautology—so why make it? If it is not contained in the premises, it cannot be derived from them. In either case it does not yield new knowledge.[16]

In the second place, since knowledge is a relationship between the observer and his environment, a change in the relationship (way of knowing) will produce a change in the body of knowledge.

An example: Let us assume a train whistle blowing in relation to two observers A and B. Aristotle would say that the whistle blowing is a property of the train and is independent of any other factor. The blowing whistle is therefore absolute. Pragmatists will place observers A and B in different relative positions to the blowing whistle. Assume that A is the closer. At a given instant in time the proposition "the whistle is blowing" is a true relationship *for A*, but at the moment A hears the whistle, for B the proposition "the whistle is not blowing" is true. . . . One has the peculiar situation then in which two given universal singular A and E propositions are both true simultaneously. Aristotle would deny this on the basis of self-evidence and assert that, while both can be false, only one can be true.

By extending the number of observers to three and locating them differently, one gets a situation that is true in experience but impossible in Aristotle's logic (since he made no allowance for the time-observer concepts). If the situation is as follows, three contrary or contradictory assertions are true: A has heard the whistle and B is hearing the whistle and the sound has not reached C. The three assertions: (1) The whistle has blown, (2) The whistle is blowing, and (3) The whistle has not blown, are all true judgments though contrary or contradictory in nature.

The above illustrations are destructive also to the classical disjunctive: Either/or, not both/and, etc. Of course, the above example can be explained today, *but not in Aristotelian terms!*

Thus by a shift of assumptions concerning the nature of function of knowledge, pragmatism has further laid the ghost of the *necessary*, *normative* character of Aristotelian logic.

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[16] Space forbids treatment of the nominalist position here with regards to the status of "All" or "No" in the major premise (first figures). Nor can the discussion include the problem of classification found in the particular minor premise.

Recent Science

It is a commonplace today that modern scientific relativity is non-Euclidian and non-Newtonian. While it is not as generally recognized, the thesis of this study is that scientific relativity is non-Aristotelian *in a logical sense as well.*

In the introductory chapter of a series of articles appearing recently in *Harper's,* Barnett senses and epitomizes this hiatus between Relativism and Aristotelianism. The two systems move in different "worlds" of discourse. Barnett writes:[17]

> Aristotle, whose natural science dominated Western thought for two thousand years, believed that man could arrive at an understanding of ultimate reality by reasoning from *self-evident principles.* It is, for example, a self-evident principle that everything in the universe has its proper place. . . . The goal of Aristotelian science was to explain the *why* of things. Modern science was born when Galileo began trying to explain *how* things happen and thus originated the method of controlled experiment which now forms the basis of modern scientific investigation.

Barnett then traces the growth of empirical science which eventuated in the mathematical, Newtonian World Machine of the nineteenth century. He further indicates deviations which became apparent late in the nineteenth century and which gave birth to modern relativism, which, in turn, made the metaphysics of Aristotle strangely obsolete.[18]

> Before the turn of the past century, certain deviations from these (Newtonian) laws became apparent; and though these deviations were slight, they were of such a fundamental nature that the whole edifice of Newton's machine-like universe began to topple. The certainty that science can explain *how* things happen began to dim about twenty years ago. And right now it is a question whether scientific man is in touch with reality at all—or can ever hope to be.

Describing further the philosophical and scientific movement away from a fixed, static world of substances with their essences and properties into that shadow world of constructs and forces and relations which constitute modern theoretical science, he writes:[19]

> Thus gradually philosophers and scientists arrived at the startling conclusion that the whole objective universe of matter and energy, atoms and stars, does not exist except as a construction of the consciousness, an edifice of conventional symbols shaped by the senses of man. Realization that our whole knowledge of the universe is simply a residue of impressions clouded by our imperfect senses makes the quest for reality seem hopeless. . . . The paradox of physics today is that with every improvement in its mathematical apparatus the gulf between man the observer and the objective world of scientific description becomes more profound.

However fascinating the foregoing line of approach is, there is no point in pursuing it further than to establish grounds upon which points of cleavage between Aristotelian and relativity logic can rest. . . . In the following examples drawn from science, our concern is with their implications for logic rather than interest in the materials, *per se.*

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[17] Barnett, Lincoln, "The Universe and Dr. Einstein," *Harper's Magazine,* April, May, June, 1948.

[18] *Ibid.,* p. 305.

[19] *Ibid.,* p. 306.

Bridgman asserts that the introduction of the *observer* into the traditional concept of *simultaneity* has wrought a revolution in physics—and our claim is that it has done likewise for logic. We quote at some length from Bridgman:[20]

> Before Einstein, the concept of simultaneity was defined in terms of properties.[21] It was a property of two events, when described with respect to their relations in time, that one event was either before the other, or after it, or simultaneous with it. Simultaneity was a property of the two events alone and nothing else; either two events were simultaneous or they were not. . . . When the range of experience was broadened, as by going to high velocities, it was found that the concepts no longer applied, because there was no counterpart in experience for this absolute relation between two events.
>
> Einstein now subjected the concept of simultaneity to a critique, which consisted essentially in showing that the operations which enable two events to be described as simultaneous involve measurements on the two events made by an observer, so that "simultaneity" is, therefore, not an absolute property of the two events and nothing else, but must also involve the relation of the events to an observer. Until, therefore, we have experimental proof to the contrary, we must be prepared to find that the simultaneity of two events depends on their relation to the observer, and in particular to their velocity. Einstein, in making a judgment of simultaneity, and in seizing on the act of the observer as the essence of the situation, is actually adopting a new point of view—namely, the operational view.

Now the operational point of view is fundamentally in opposition to Aristotelianism. Operationalism is erected upon the philosophical premise that nature, *per se*, can never be known. In this respect it is inextricably bound up in the epistemologies of Locke, Berkeley, and Hume. The only thing one can say about an existent of nature is grounded on the experiences he has had with it. It is a moot question, and probably unanswerable, to ask if the description and the object correspond, etc.

In the operational point of view, the objects of scientific investigation are descriptions or measurements. That and nothing more. And even here description is relative both to the observer and to the frame of reference from which the observation is being made.

An example of this is found in the Fitzgerald Contraction Theory—that an object is longer when placed at right angles to the axis of rotation of the earth than it is when placed parallel with its path of rotation.[22]

Eddington[23] reports that a measuring rod contracts one-half at the velocity of 161,000 miles per second, and as it approaches the speed of light its length tends toward zero.

Still another example of the complexities encountered in this operational frame of reference is given by Barnett. He describes research that was directed toward explaining quantum phenomena. One set of operations described these phenomena in terms of "matter waves;" another set of operations described it in terms of particle; still another operation described it as "probability waves."

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[20] Bridgman, Op. Cit., pp. 6-7.
[21] Just to ask the reader not to forget that "property" is an Aristotelian concept.
[22] Eddington, A. S., *The Nature of The Physical World*, p. 5.
[23] *Ibid.*, p. 8.

Barnett then draws some conclusions which again indicate *that contradictory or contrary propositions may both be true.*[24]

> While quantum physics thus defines with great accuracy the mathematical relationships governing the basic units of radiation and matter, it further obscures the true nature of both. Most modern physicists . . . consider it rather naive to speculate about the true nature of anything. They are "positivists" who contend that a scientist can do no more than to report his observations. And so if he performs two experiments with different instruments and one seems to reveal that light is made up of particles and the other seems to reveal that light is made up of waves, *he must accept both results,*[25] regarding them not as contradictory but as complementary. By itself neither suffices to explain light, but together they do. Both are necessary to describe reality and it is meaningless to ask which is really true. For in the abstract lexicon of quantum physics there is no such word as "really." [26]

Eddington supplies our next example which would perplex an Aristotelian:[27]

> Consider an electrically charged body at rest on the earth. Since it is at rest it gives an electric field but no magnetic field. But for the nebular physicist it is a charged body moving at 1,000 miles a second. A moving charge constitutes an electric current which in accordance with the laws of electromagnetism gives us a magnetic field. How can the same body both give and not give a magnetic field? On the classical theory we should have to explain one of these results as an illusion. . . . On the relativity theory both results are accepted. . . .

Out of the above and other considerations, Eddington made a generalization that is far reaching in its implication in reference to the problem of this study. In discussing what he terms "frames of space" and in answer to the question, "which is the right frame?" he writes:[28]

> And so the position of Einstein's theory is that the question of a unique right frame of space does not arise. There is a frame of space *relative* to a terrestrial observer, another frame *relative* to the nebular observers, others relative to other stars. Frames of space are relative. A distance reckoned by an observer on one star is as good as the distance reckoned by an observer on another star. We must not expect them to agree; the one is a distance relative to the one frame, the other is a distance relative to another frame. Absolute distance, not relative to some special frame, is meaningless.
>
> The next point to notice is that the other quantities of physics go along with the frame of space, so that they also are relative. . . . If you alter the reckoning of length you alter the reckoning of other physical qualities (such as time and mass.) [29]

Summary of Recent Science

It is believed that the foregoing examples drawn from relativity or nebular physics demonstrate its highly non-Aristotelian nature.

Aristotle's metaphysical "world" of substance, essences, qualities, attributes, properties, etc., has been forced to yield to a shadowy "world" of forces, magnetic fields, frames-of-space, mathematical constructs, etc. The word "real," or "really,"

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[24] Barnett, *Op. Cit.*, pp. 310-311.
[25] Italics not in original.
[26] Also see Eddington, *Op. Cit.*, for meaning of "really."
[27] *Ibid.*, p. 22.
[28] *Ibid.*, pp. 21-22.
[29] Bertraud Russell gives some fascinating examples in exposition of this point of view in his book *The A B C of Relativity*, Ch. IV, "Clocks and Foot Rules."

as it applied to the Aristotelian world is strangely obsolete in the lexicon of nebular physics.

Examples have been given to indicate how relativity physics "harbors" contradictory propositions as complementary; how the law of Identity has lost its absolute character; and how apparently complete disjuncts can both be affirmed.

Verily, the structure of theoretical physics today strikes a mortal blow at the principles underlying Aristotelian logic. . . .

PART III

THE EXTENSIONAL LIMITS OF ARISTOTELIAN LOGIC

Kant is credited with the following statement concerning logic: "Since Aristotle it has not had to retrace a single step . . . and has not been able to make a single step in advance so that, to all appearance, it may be considered as complete and perfect."[30]

Most of the readers of this article were nurtured on the notion common to Kant that traditional logic was normative and necessary. . . . One recalls that St. Thomas converted the recalcitrant Arabs by turning to Aristotle; one recalls that the Medieval synthesis emerged under the nurture and guidance of Aristotle; one remembers that his teachers of logic turned their faces thrice daily toward the Lyceum of ancient Athens and made obeisance at the shrine of Aristotle. . . . Yes, we were taught that man *had* to think in terms of Contradiction, Identity, Excluded-middle, etc., if he were to think rationally and well. . . . But then came a rebirth of Heraclitan change and flux. . . .

An examination of the extensional limits of classical logic compels one to put it into its proper place in the history of philosophy—*it is but one of the many ways devised by man in his attempts to find meaning and to establish order in his world.*

Certainly there is nothing to indicate its *necessity* in achieving rational discourse. To say that it is no better or no worse than other ways of knowing would perhaps be unjust—its survival through the centuries indicates its profound appeal to reasonable men and its superiority (of appeal) over many other systems. But its universal and necessary character must be denied. . . . As was written earlier, some men *do* think in these categories; all men *may* think in these categories; but there is no voice or standard which *compels* men to think in these categories. The cosmic order is strangely silent as one listens for any imperatives in the logic of inquiry.[31]

Modern philosophical man has an apparently fairly accurate notion of the nature of any knowing enterprise. . . . One starts with assumptions or primitive indefinables. Not many of such are apparently necessary for a consistently coherent system. And from these *axioms*, these *givens*, he erects the superstructure of his system. . . . Aristotle *assumed* that his system was structural to the nature of things; Euclid made similar assumptions, as have other system builders through

[30] Dewey, John, *Logic, The Theory of Inquiry*, p. 81.

[31] This applies with equal cogency to any and all systems of inquiry, including scientific method.

the centuries. Even science, the methodological goddess of the modern world, is erected on such assumptions.

The extensional worth of Aristotle or of science depends upon what kind of answers one expects from his world. Aristotle assumed that knowledge of the ultimate nature of Reality was attainable. His system of logic yielded him such knowledge *by definition.* Modern science sees the knowing process as a means of making the environment (whatever *that* is) yield man the things he desires–and it has been successful beyond the wildest Baconian dream. Neither Aristotle nor science can yield answers satisfying to the other.

To ask which is right appears meaningless. Both may be right; both may be wrong; depending on how "right" and "wrong" are defined–and there is no limit to stipulation of meanings!

It would seem that if one chose Aristotle he would do so for personal, subjective, relative reasons. If Aristotle yields the kinds of results one is looking for, his choice is wise; if not, then not.

And finally, no longer is Aristotle a normative club with which the dialectician can beat his opposition into silent submission–for Aristotle has been reduced from the throne of *the universal one* to an unprivileged position among the *many!*

PART IV

SOME IMPLICATIONS FOR EDUCATION

The foregoing does not indicate that classical logic should be deleted from the curriculum of institutions of higher learning. To do so would be to commit the error of failing to recognize that most of our western intellectual institutions are predicated on Aristotelian assumptions. . . . Nebular geometry has not invalidated Euclidian geometry, though it has placed Euclid in clearer relational perspective. This same relation seems to hold between classical and relativity logic. It would seem, further, that instructional objectives should include a frank policy delineating these operational limits of traditional logic.

Again, it would appear the better part of wisdom to treat Aristotelian and relativity logic as complementary rather than as contradictory. For generations to come both are going to be necessary in handling the data of experience.

One last disturbing thought that educators need to ponder–A quote in an earlier section of this analysis stated that ". . . the paradox of physics today is that with every improvement in its mathematical apparatus the gulf between man the observer and the objective world of scientific description becomes more profound."

What a paradox it is that the more man explores critically to find answers, the more ingenious he is in devising ways of knowing, the more obscure and shadowy the world becomes. The following far reaching assertion seems consonant with the findings of this paper: Except for rather frugal controls for diverting this and that current of the world to human ends, man must forever remain a stranger to his world, because he can never know that that which he knows has any relevancy to the nature of things, except functionally. □

THE GROWTH THEORY IN MODERN SECONDARY EDUCATION

BY HARL R. DOUGLASS

WHILE THE RIGID HAND OF A DEAD PAST still clutches the collar of secondary education in the United States, its fingers are loosening and its strength waning. A new and more functional approach to objectives, materials, and practices has been born and in recent years has been with accelerating speed approaching maturity —the *human growth* philosophy of education. Secondary education in the United States, as in most other countries, has been a direct descendant of secondary schools in England and Germany. The institutions in Germany which served as models of secondary education in the United States are those built at the time of the Renaissance, particularly the gymnasium at Strassburg, the curriculum of which was established by Wilhelm Sturm in the 16th Century. It was the theory underlying these secondary schools that they were places where the revived learning of the Romans and the Greeks was to be taught. Practically all science, philosophy and other types of important literature were in the Latin and Greek languages. Objectives of education, in terms of the students, as conceived at that time were no broader than the development of whatever growth would take place—principally intellectual growth—as a result of the study of the Latin and Greek authors.

In the early secondary schools and later in the colonies in the United States, a very similar educational philosophy prevailed. The principal objectives of education were conceived to be the acquisition of schoolbook information and school subject skills. This sort of philosophy apparently was not seriously questioned in American secondary education, at least not on a national basis, until the appearance of that epochal report, considered by many the Magna Charta of modern secondary education, the Cardinal Principles of Secondary Education[1] prepared by a commission of the National Education Association under the leadership of the chairman, Frank Kingsley, Commissioner of Education for Massachusetts. In this document, *for the first time by any national body of educators, the objectives of education were stated in terms of growth of the students* in the direction of preparation for living in the important areas of life—home living, vocational life, civic life, leisure activities, health, ethical character, command of fundamental processes.

In the first decade or two after the publication of this report, teachers and curriculum makers were giving lip service to the cardinal principles and the ob-

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[1] *Bulletin* of the U. S. Bureau of Education, 1919, No. 18.

jectives stated therein, but continued to do a great part of their thinking, and to build their practices in curriculum making and classroom procedures upon such fundamental criteria as formal discipline and transfer of training values and the passing on of the cultural heritage by means of having each successive generation acquire a superficial acquaintanceship with mathematics, foreign languages, history and classical literature, art and music. Slowly, gradually, but definitely in the last two or three decades, there has spread throughout the secondary schools, and even more rapidly in the elementary schools, curriculum and instructional practices based upon the fundamental philosophy that schooling is for the purpose of stimulating all around growth and that subject matter and materials are but means to that end.

THE BIRTH OF A MORE FUNCTIONAL THEORY[2]

Every living organism, plant, or animal is always in a state of change, or an organism which is not undergoing change is not alive. One cannot arrest change in general although, in certain areas, one may slow down, or prevent, changes of certain types. One may also accelerate or direct change.

No evidence need be produced here to support the fact that growth is the result of both heredity and environment. It will suffice to say that there are certain areas in which heredity is more important than environment, that in others the opposite is true. Even upon physical growth, however, environment may wield an important influence. In certain other areas as speech, schools of instruction, ideals, attitudes, interests, the limits set by heredity permit very great flexibility and freedom for growth as a result of the experiences resulting from contributions from environment. As Fiske pointed out nearly a half century ago in his important little monograph, "The Meaning of Infancy,"[3] the plasticity of the human being is comparatively great. The limits within which growth of other animals can develop are much narrower and more rigid. The young of other animals arrive at maturity within a period which constitutes a much smaller total of the life span.

The place and function of the school, as envisaged by the growth theory of education, is to provide situations which will result in experiences on the part of learners, which experiences condition the nature, amount, and direction in which the learners grow. How an individual acts, thinks, or feels is conditioned greatly by how that individual has acted, thought, and felt in the past. What constitutes one's ideals, attitudes, and interest, one's intellectual and physical skills, one's knowledge, one's emotional attachments, all these and more, are the results of the contact of one with one's environment; in other words, one's experiences. It has often been said that experience is the best teacher. As a matter of fact, it is the only teacher. If growth of the organism is produced or influenced in any way

[2] Because of space limitations, no attempt will be made to assess the influences, important as they were, upon the development of the growth theory of education of such developments and factors as (a) Gestalt theories of learning, and (b) organismic concepts and practices in human relations in the home, industrial and most all areas of life.

[3] Houghton-Mifflin Company, 1911, 45 pp.

except through experience of that organism, that growth is not learned. It is inherited.

The function of the school is to provide an environment which will result in influencing growth to a greater degree and in more desired directions than would result from experiences which the learner otherwise would have had. The curriculum and methods of teaching are no more than provisions by means of which appropriate educational experiences are assured.

With the acceptance, and a more complete understanding, of the growth theory of education, there has resulted the increasing belief, and the spread of practices based on that belief, that the school must take definite cognizance of the fact that the organism undergoes types of growth which are of equal or greater importance for the happiness and welfare of the individual, as well as to the welfare of society, than intellectual growth. Even in those classrooms where teachers believe that the school is exclusively concerned with intellectual growth, it is impossible for the teacher to refrain from stimulating learner experiences which influence the growth of the individual in other areas—social, emotional, and physical. In other words, educators must constantly be thinking of the possibility of influencing, for better or for worse, the all-around growth of the individual. When the student comes on to the school ground or into the classroom he comes as a total organism. He does not leave the social or emotional and physical fractions of his being outside and bring merely his intellectual self into the classroom. If he did, it would be difficult for him to be motivated at all.

IMPORTANT IMPLICATIONS FOR "CURRICULUM"

Among the most important conclusions in this line of reasoning are the following two:

1. *That the school must play the important part in providing experiences which will contribute to desirable growth on all fronts—emotional, social, and physical as well as intellectual.*

2. *The school must carefully evaluate the results upon all phases of growth of all the experiences of the individual at school and its influence.*

The latter of these has very important implications for such matters as means of motivation of learners, and for the results of relative success and failure upon the individual's attitudes toward himself, others, and toward educational institutions. To those who have accepted the growth philosophy of education, what William Heard Kilpatrick and others have for a quarter century referred to as *concomitant outcomes* are very important. Indeed, in some instances at least, they are far more important in determining the growth of the individual in certain areas than the other contributions of learning experiences related to the study of subjects.

While it is exceedingly difficult if not completely impossible to set up mutually exclusive categories of types of educational growth, classifications similar to that given below are very useful in thinking about and planning educational experiences:

1. Information of a detailed factual nature, e.g., London is the capital of England.

2. General principles, such as Boyle's law in physics.

3. Understandings and concepts, such as the concept of evolution.

4. Mental skills, such as those involved in multiplication, in reading and in translating French.

5. Motor skills, such as riding a bicycle.

6. Social skills, such as managing introductions and conversations effectively.

7. Habits—physical, social, and intellectual--such as putting away tools after use, combing one's hair, employing accepted social greetings, and avoiding jumping at conclusions.

8. Ideals, such as the desire for the extension of democracy and for improved speech.

9. Tastes, including such matters as a liking for good literature, dislike for ostentatious dress.

10. Attitudes, including open-mindedness, fairness and respect for people of other races, colors and economic status.

It seems to follow rather logically then that if any program of education, including curriculum, instructional methods, guidance, and other areas of the program, is to be improved or to be made more effective, it is necessary (1) to make at least a fairly thorough inventory of what areas of life and what types of situations the learner should be educated for; (2) make a comprehensive inventory of the more important types of educational growth that will contribute to several degrees of people for living in those areas; (3) provide, in a combination of subjects or other aspects of the school, living situations which will result in experiences on the part of learners which will result in the types of specific growth which will contribute to effective performance in the areas of living for which the learner is being prepared. For example, in preparation for citizenship are the following:[4]

1. *Knowing what is right and effective in the society in which the person is a citizen.* This knowledge consists of some which must have been learned previously, particularly fundamental principles, some which the citizen will most probably possess incidentally to his life in the society and some which he will have to acquire as the specific needs arise.

2. *Being willing to behave in a way which is right and effective.* This may be in part a matter of heredity, but it is probably in larger part a matter of learning. To insure right and effective behavior, the individual must be invested with appropriate ideals and attitudes and he must be kept from the development of unfavorable ideals and attitudes, e.g., ideals of excessive personal power or gain, ideals of racial, national or regional supremacy over others, attitudes of ill will or

[4] Harl R. Douglass and Hubert H. Mills. *Teaching in High School.* New York, The Ronald Press Company, 1948, p. 48.

contempt toward other groups or classes of society, and attitudes of indifference to matters of honesty, sexual regularity, the welfare of others, etc.

3. Being willing and able to behave in an appropriate and effective manner also involves the *possession of interests which will lead one to read and investigate and to become informed relative to matters upon which intelligent decision must be made* by the citizenry of the society in which one lives, and to discharge the duties of any office to which one might be elected—e.g., labor problems, international relationships, various types of private and public social security.

4. *Developing appropriate skills*—skills in getting on with others, in self-expression, in thinking clearly, and in evaluating what he may read or hear on questions confronting or likely to confront citizens of his time.

5. *Acquiring wealth of appropriate habits*, so that right and effective behavior is only to a small extent a matter of conscious decision. It becomes more and more automatic due to habits of industrious, honest, thoughtful behavior.

6. *Acquiring a working collection of useful concepts and basic general ideas* which enables the citizen to understand and evaluate human experience and proposed lines of social action. He knows, for example, what constitutes democracy, communism, fascism, and socialism. He is not satisfied with cheap substitutes for democracy and is not stampeded by fine-sounding but fallacious doctrines, or deceived by the application of terms like *communism* or *fascism* to practices which are really democratic in nature.

CO-ORDINATION OF OUT-SCHOOL ENVIRONMENTAL INFLUENCES

It is necessary in the planning of the school program to take into consideration, and have knowledge of the experiences which the individual has had previously, and his resulting status with respect to many types of educational growth, and also to bear in mind that while he is in school he has experiences outside of the school which influence growth, and that the nature of his experiences in the school are conditioned by experiences he is having outside the school.

It is clear that the resultant growth of the individual is the resultant of many environmental sources of experiences including his home, his playmates, the radio, television, movies, the comics, his work experiences, and his church and religious experiences. To be most effective, the school program therefore must be planned with considerable knowledge of (1) the status of the development of the individual and of the classes of individuals with respect to the types of growth that are the objectives of the school; (2) experiences the learner is receiving outside the school which may accelerate, interfere with, direct, or negate the educative results of the school experiences. Since the school is more subject to control and manipulation as compared to the other sources of educative experiences, it must therefore operate along lines which include the following principles:[5]

1. The specifications for the desired product of the schools must be drawn in the light of the conditions and demands of society as the learner will find it,

[5] Harl R. Douglass and Hubert H. Mills. *Teaching in High School*. New York: The Ronald Press Company, 1948, p. 52.

including conditions in contemporary society which call for compensatory or corrective education.

2. When some other social institution or area of the learner's environment no longer influences growth towards the objective of education as it did formerly, the school must follow one of three alternatives. It must (a) re-educate the particular social institution or educate some other agency to take over and serve as a replacement; (b) allow the particular educational service to go unperformed; or (c) adapt the school program so as to assume the particular educational function.

3. When the educative influences of out-of-school experiences duplicate those of the school, the school should (a) determine the degree to which certain instructional activities are no longer necessary, and (b) adapt instruction so as to eliminate superfluous activities.

One of the important logical conclusions to be drawn from the foregoing is that leaders in course of study construction, the classroom teachers, must be well aware of conditions, problems, trends, and changes in life outside the school. The teacher must possess a workable orientation in respect to living, and evaluate life in terms of the changes it makes upon education. He must also be conversant with changed conditions and current changes, and therefore be able to predict with some accuracy the conditions of living as the learner will find them in later years if he is to plan educative experiences which will develop growth of such a nature as to prepare the individual to live most effectively in his world, not only as it is today, but in years to come. It is probably in this particular area that teachers in secondary schools throughout the world are particularly deficient. The tendency is for them to be specialists in subject matter, and it is also the unfortunate tendency for them to live in ivory towers and to be lacking in interest and financial resources which would enable them to read widely and be well oriented with problems of our current American culture and its more important trends.

THE IMPORTANCE OF FOCUSING UPON THE INDIVIDUAL

An important consequence of this line of thinking is the concept that while pupils may be grouped for the better adaption of learning experiences, it is the individual learner who learns. What learning takes place is an individual matter. It is conditioned by what the individual brings to the learning situation in the way of capacity, basis for understanding, interests, and other individual matters. A class does not learn; individuals in the class learn. The class has no receptory apparatus for learning, no cortex or nervous system. It is therefore important that the teacher and others planning educative experiences for individuals must have much knowledge of each of the individuals, and that, within the general framework of class procedures, there must be ample opportunity, and indeed ample provision, for adaptation of experiences for each individual which are peculiarly appropriate for his capacity, status, background, and needs.

SOME IMPORTANT TRENDS IN PRACTICE

There are prominant trends in current practice that seem to grow out of the growth theory. Among them are:

1. More careful provision for social experiences which are conducive to good growth rather than unfortunate and undesirable outcomes. Schools throughout the country are giving much more attention to increasing use of sociometry, and increasing guidance and extracurricular provisions for desirable social experiences for the individuals.

2. A thorough revision of the marking and reporting system, particularly with respect to its use for motivation of school work. In an increasing number of schools throughout the country, it is becoming more and more to be regarded as unprofessional and incompetent for teachers to rely heavily upon threats, artificial rewards, and worries and fears as the principal means of motivating learning activities. Indeed, there is a very pronounced trend toward the use of more direct and intrinsic approaches to motivation. There is more provision for the participation of the learners in planning their own learning activities. There is a trend toward the greater use of materials and experiences which seem to the learners to be as meaningful in the present as in the future. There is also the trend toward developing learning activities which are more definitely in harmony with the interests, needs, and desires of growing young people.

CONCLUSION

To sum up, it is obvious that in many secondary schools much progress has been made, and in the great majority some progress is discernable, in the direction of the acceptance and implementation of the growth philosophy of education which introduced the following important trends:

1. Increased efforts for the purpose of providing situations which will result in experiences of learners which, in turn, will condition and encourage growth toward competence in various areas of living.

2. More attention is being directed toward social, emotional, and physical growth as well as, if not more than, toward intellectual growth.

3. There is a growing belief that intellectual growth cannot be stimulated and directed without important effects upon other areas of personality.

4. A sound educational program must be built upon thorough and painstaking investigation to identify types of outcomes which are needed as important basic units in growth for competence in living. There are some nine or ten types of such growth outcomes, including ideals, interests, principles, attitudes, skills, habits, understandings, possession of information, etc.

5. The provisions for learning experiences in the school must be developed in the light of, and by adapting them to, the individual learner, the status of his previous growth along the lines of the objectives, his present interests, and his needs.

6. The school program must be built in view of, and in recognition of, the fact that the learner is having experiences outside the school which will condition his growth in the areas which are the objectives of the educational program, and that these experiences may impede, accelerate, or influence the nature of the growth resulting form the school experiences.

7. In order that there may be provided educational experiences most appropriate for growth, which will permit and facilitate most effective participation in, and adjustment in, living in the present and future American society, those responsible for determining the nature of learning experiences must be well oriented in respect to the conditions and patterns of American life and its trends and changes.

8. If the learning experiences are to be most effective they must be arranged and planned in respect to *all* their influences upon growth—direct and indirect. This will call for a very careful evaluation of such matters as the use of marks, the place of criticism on report cards, and the general attitudes and other effects that may be generated by contacts with materials and classroom procedures, and by lack of confidence and interest in materials and objectives of instruction.

It should go without saying that the materials of implementation of the growth theory in secondary education are conditioned by, and developed in, the light of the constituency of the learning group. It is the general consensus of careful students of secondary education that the program of the typical secondary school is at present adapted best to the second quarter of all American youth, and not well adapted to the lower third and upper fifth of boys and girls of high school age.

Current classroom procedures are much better adapted to youngsters of greater verbal intelligence, academic interest, and docility—than to those of lesser qualities in these areas. It is frequently heard that the secondary school programs are adapted to the "upper one-half" and that adjustment must be made to the "lower one-half." It is thought that there is need for concentration upon the needs of the fifty to sixty per cent of high school youth who will not later go to college or into the skilled trades.

As the percentage of youth of high school age attending school tends to approach universality, the problems of the implementation of the growth philosophy of education becomes greater. Individuals who will be remaining through the twelfth grade of the high school in the next few decades will increase the percentage of those of less verbal intelligence, less academic interest, less status with respect to subject matter and to types of growth in the tools of learning, and with less desire for and interest in materials and curriculum procedures adapted to the select few—the boys and girls of "parts" who were able to persist and to become, and remain, interested in the academic curriculum inherited from the secondary schools of England and Germany, based as it was on the learning of the Greeks and Romans. □

TOLERANCE, INTOLERANCE, AND PREJUDICE

BY SAMUEL ENGLE BURR, JR.

THE WORD "TOLERANCE" is used in a number of fields which may seem to have little immediate relationship with one another: for example, it is used in the fields of mechanics, medicine, and sociology.

In mechanics, it may be said that certain parts of a machine have a *tolerance* of one one-thousandth of an inch. This means that replacement parts for such a machine will be interchangeable if they do not vary in size by any more than one one-thousandth of an inch. If replacement parts vary more than this in size, the machine will not tolerate them.

In medicine, it may be said that a human body can withstand the effects of a certain quantity of a drug or of a poison, or certain limited changes in atmospheric temperature and pressure. A man who regularly smokes one or two cigars each day has accustomed his body to react without apparent *adverse results* to the nicotine in the tobacco, but a boy who has not smoked before may be made violently ill if he smokes only a part of one of his father's cigars. Similarly, the body will adapt itself to receiving gradually increased amounts of arsenic or of alcohol. In such a situation, it is said that the body will *tolerate* a drug or a poison in varying quantities, according to a number of variable factors.

In sociology, the idea or meaning of tolerance is basically the same as it is in mechanics and in medicine but the concept becomes much more complicated in this third field. Here it becomes involved with evaluations, discriminations, and appreciations, and two factors which are more or less the opposites of tolerance —namely intolerance and prejudice—appear.

Care should be taken to distinguish between these two: intolerance and prejudice. Prejudice ordinarily connotes a judgment which is formed before considering all of the evidence in a given situation. It may also indicate an unreasoned opinion, or one that has been made hastily or prematurely. Contrary to popular usage, prejudice may be either favorable or unfavorable—in the ordinary language of our day, it usually represents an unfavorable point of view. Intolerance, on the other hand, means just what the word itself indicates—a lack of tolerance. Intolerance may result from careful study and from full understanding in a given situation. A person may know both sides of a controversial issue equally well, but he may be tolerant toward one side of it and intolerant toward the other.

Some writers and speakers who have dealt with these matters in the past have seemed to feel that one who is well informed about a subject will develop

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toleration concerning it while one who is ignorant will be intolerant or prejudiced. They say, from time to time, "Intolerance is the result of ignorance." This is not necessarily true. Either tolerance or intolerance may grow out of a full knowledge of a subject and either a tolerant or a prejudiced attitude may be founded upon ignorance.

It does appear to this present writer, however, that either tolerance or intolerance is bad, when rooted in ignorance rather than in knowledge and understanding. And either tolerance or intolerance may be good, when based upon knowledge and understanding. But real prejudice—either a favorable or an unfavorable attitude—based upon ignorance or formed prematurely, before giving due consideration to all of the facts, is an evil thing. A person may be quite justified in being either tolerant or intolerant on the subject under consideration, but he should not indulge in prejudice.

One of the very desirable parts of the educative process which all men should experience is the formulation of a desirable set of tolerances and intolerances. They should not be the random assortment of likes and dislikes which anyone may possess, whether he be educated or not. They should be well thought out points of view and they should dovetail so that they form a well integrated philosophy of life.

If they are worth while, these tolerances and intolerances will have their roots in some framework of values which the individual accepts. Back of any decision to tolerate or to reject certain words, acts, opinions, or concepts, there must be a conscious or an unconscious acceptance of some method for determining that which is morally and ethically white, that which is black, and that which is one of the many intervening shades of grey, between white and black.

Some of the more readily distinguished frameworks for determining relative values are:

1. Divine Revelation, the authoritative word of God, the ordained and sanctified pronouncement of the Creator and Ruler of the Universe.
2. Established custom or tradition which accepts that which has been done in the past, which looks upon the past with veneration and respect, and which tries to perpetuate the past in the present and the future.
3. Scientific experimentation which grows out of probing into reality by means of questions and through the raising of doubts, and which can present and demonstrate proof to support its findings.
4. Complete acceptance of "nature" as it appears to exist and as it can be observed, understood, and appreciated through the use of man's five senses.
5. Judgment of all action or inaction by the effects and results which are produced, directly and indirectly, by that action or by the absence of action.

6. Emphasis upon utility and usefulness (the pragmatic point of view) as the basis for determining that which may or may not be acceptable in any given situation.

As an individual acquires more education and more experience, it becomes increasingly necessary for him to accept one or another of these rival frameworks—or some reasonable overlapping of non-antagonistic elements from two or three of them—in order to formulate a philosophy of life and living. His tolerances and his intolerances then will grow out of his basic philosophy, if he is to be at all consistent and comfortable in his own mental processes. In some cases, the tolerances and intolerances may be decided first and the individual will find that because of his likes and dislikes he has become a supporter of one of the above systems for determining values.

There are several differing kinds of tolerance and intolerance, and each kind admits of varying degrees. The same is true of prejudice—there are varieties of prejudice and within each variety, there may be varying intensities.

One of the highest types of social tolerance grows out of the religious belief that all men have been created by the same God and that, in this sense, all men are brothers. And the Creator made man a gregarious animal. Almost all men prefer the company of other humans rather than a condition of solitude. In fact, one of the greatest punishments which organized society can inflict upon a human being is to separate him from his fellows, in solitary confinement.

And so men tolerate one another because of their one Creator who has given them a common origin and, perhaps, a common destiny. The brotherhood of man has a real and a powerful significance when viewed in this perspective.

Another high type of social tolerance develops from the fact that man's thinking finally comes to a blank wall which even the greatest minds have failed to penetrate. The framework which limits mankind, which makes him finite rather than infinite, is a framework which is shared by all men, without exception. This framework is flexible and it expands as time progresses, but still the blank boundary wall remains. It can be pushed back, further and further, but it remains impenetrable. The search for absolute assurance as to the ultimate realities of the Universe remains the most fascinating pursuit of this present age, as it has been in all preceding ages.

The development of the philosophical bases for altruism also has brought a type of tolerance. It is a tolerance which assumes that which is good until the presence of evil is proven. Altruism connotes a certain sense of benevolence—an acceptance of others and of their qualities and the assumption that both other people and the qualities which they possess are fundamentally acceptable, rather than that they should be rejected, while still unseen and unknown. In other words, altruism really involves a type of prejudice—a favorable prejudging in the absence of some of the facts.

Even though all men may be the children of God (the Creator) and thus may be considered to be brothers, they obviously have been created unequal in many regards. In a sense, it is the differences which give to each man an indi-

vidual personality which is more or less desirably unique. Because men differ from one another in many ways, both tolerance and prejudice are possible. There would be no tolerance or prejudice worthy of thought and attention if the two and one-half billion persons who now populate the earth were exact duplicates of one another: physically, mentally, socially, and morally. In fact, the individual differences which distinguish men from one another make both tolerance and prejudice inevitable aspects of mankind's existence upon the earth.

Not all types of tolerance are desirable nor are all types of intolerance to be condemned.

Attention has been directed to the fact that some standards for judging values are based upon religious beliefs. Religion does not give all men all of their foundations which serve as bases in forming judgments, however. Some men base some of their judgments—or even all of their judgments—upon such things as current custom, old traditions, scientific evidence, or the practical effects which derive from action or inaction.

Undoubtedly there are many individuals who are quite indifferent about some of the situations which arise during the period of their life on earth. They profess no abiding interests in religion, politics, economics, business, literature, art, or music. Their lives are given over to adjusting themselves to the changing elements of the current social scene. They don't care in the least where the Iron Curtain happens to fall or who may be on either side of it. They have no apparent interest in any new dogma which this or that church may adopt. It is immaterial to them whether an orchestra plays Bach or Wagner—whether television presents a United States Senator or a gorgeous wrestler as its star performer. This tolerance of indifference is hardly tolerance at all. It is the lack of opinion rather than the expression of opinion.

No matter where man may base his values—in religion, in tradition, in science, or in utility—the tolerance of utter indifference surely is to be condemned.

So also is the tolerance of prudence or policy a weak and indefensible position. There are men who hold to a given view in politics or in economics because "they know on which side their bread is buttered." They don't want to start an argument. They don't want to antagonize the boss. They don't want to be unpopular in the opinion of this, that, or the other person or group of persons. And so they tolerate things which really displease them. They would vote the straight party ticket, even though the Devil himself had been nominated for an important office where integrity, honesty, truth, honor, and virtue are known to be necessary qualities if the public good and the welfare of the state are to be maintained. They even express prejudices because it seems to be the discreet course to follow at the moment. They are opportunists who join the hue and cry against any individual, or race, or religion which happens to be unpopular today. If that which is unpopular today becomes accepted tomorrow, they have no difficulty in hurdling the barrier which separates one position from the other. They always want to be on the bandwagon which leads the parade. Their moral backbones seem to be made of steamed spaghetti rather than of anything possessing any semblance of rigidity.

Still more to be despised are those who avoid expressing any opinion at all. They spend their lives straddling fences, in an endeavor to avoid giving offense to those on either side. They do not support any positive position and seek to succeed in life by the use of one negative after another. If they do hold a definite position, they make every possible attempt to conceal it from their fellows, perhaps through fear of the possible consequences.

Nothing could be further from the truth than that mistaken fetish to the effect that all tolerance is good and that all intolerance is bad. Such a position in philosophy would produce no zealots, no missionaries, no martyrs. The world would be a very dull place, indeed, if everyone "tolerated" everyone else—if every believer in a cause put forth no punitive effort to influence others toward his way of thinking.

Tolerance can go so far as to provide space and time and opportunity for its enemies to breed, to grow strong, and to destroy the very social system which makes tolerance possible. Tolerance is not a "good" unless it is limited by enlightened intolerance.

Either tolerance, intolerance, or prejudice may grow out of ignorance. We may tend to be suspicious of things which are not clearly understood. In other cases, men may tolerate some undesirable situation because its true nature or basis has not been made clear. And any prejudice implies a lack of adequate knowledge.

There is no virtue in a position based upon ignorance, even though it may be the "right" position. It is only after a situation is fully understood that a position of tolerance or of intolerance should be entertained with any degree of virtue being involved.

Just as any human body has a limit to its ability to withstand extremes of heat or cold, just as any machine has a limit to its ability to function with replacement parts that do not fit, so our civilization has a limit to the degree of tolerance which it can hold for forces which might destroy it.

A person can accustom himself to the use of just so much arsenic, or so much alcohol, or so much nicotine. Beyond that limit, he cannot go, without destroying his own existence. So also can the individual tolerate just so much of the forces which work against his personal plan of living. If he tolerates adverse elements beyond that critical point, then he no longer can hope to achieve success for his own life purposes.

One of our great problems, as a civilization or as individuals within the social structure, is to recognize the critical point beyond which tolerance should not extend. □

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BOOK REVIEWS

THE FORMS OF VALUE. By A. L. Hilliard. New York: The Columbia University Press, 1950.

If one were to evaluate Hilliard's efforts according to whether or not he accomplishes his avowed objectives, this book could hardly be considered a success. On the other hand, its shortcomings in this connection are as much due to the magnitude of the tasks which Hilliard set for himself as they are to his shortcomings as an axiologist. In Hilliard's own words, these tasks are:

> ". . . Taking a hedonistic theory of value as an hypothesis, to exhibit in outline its explanatory and unifying powers within and among the several intellectual disciplines having an axiological foundation. The ultimate practical object aimed at in the following investigation is to suggest the desirability, propose the instrument, and provide the means for removing all the disciplines based on the conception of *value*–especially aesthetics and ethics–from the jurisdiction of philosophy as traditionally conceived and for placing them under experimental science."

His concluding remarks supplement this earlier statement pointing out three basic propositions which constitute the core of his position and which his work has sought to support.

> "1. Hedonism provides a single, simple, and consistent set of postulates under which the entire range of phenomena involving the concept of *value* may be unified, interconnected, and explained.
>
> 2. All forms of *value* are relative to particular organisms in time, and no proposition concerning *value* can be unambiguous or even meaningful unless the referential time and organism are specified.
>
> 3. Propositions and judgments of *value* are species, respectively, of propositions and judgments of *fact*, thus providing a theoretical basis in logic for the removal of ethics, aesthetics, and the other value disciplines–hitherto considered largely or wholly *sui generis*–from the jurisdiction of speculative philosophy, dogmatic theology, and personal opinion, and for their establishment as distinct but interrelated branches of empirical scence."

However, in my judgment *The Forms of Value* has not quite settled the major issues in contemporary axiological theory, although it does throw light–in some cases, fresh light–upon them.

With respect to current axiological controversies over the intersubjectivity of axiological propositions, Hilliard attempts to strike a mean beween the emotive theories and those which ground the cognitive status of value judgments in non-public sources by affirming the validity of the inclusion of axiological propositions within the domain of science. The position taken is, as Hilliard himself admits, very similar to that taken by C. I. Lewis in *An Analysis of Knowledge and Valuation*, and educators interested in value theory who have put off the attempt to understand Lewis's position because of its technical presentation will find its educational implications discussed at some length in Hilliard's work.

One such implication appears rather paradoxical in works which emphasize the cognitive nature of valuation. Both Hilliard and Lewis argue that education,

most broadly conceived, goes awry frequently because our culture minimizes the "having" of aesthetic experience. Our pedagogical efforts are said to emphasize the "how" and to neglect the "why" of achieving goals which, when achieved, frequently fail to eventuate in those qualities of experience affirmed to be intrinsically good. The remedy suggested is more attention to the affective and aesthetic side of experience for it is this aspect of experience which is held to constitute the legitimate justification for the cognitive aspect. Put in another way, knowledge is for practical ends, but educators have misconstrued "practical ends" to mean those uncritically accepted within our culture. We have little knowledge on what is good for us because we so seldom experience, actually or symbolically, the goals we strive for, nor do we seriously question the quality of experience that accompanies the striving for and the achievement of our common goals.

Educational philosophers have frequently felt and expressed dissatisfaction with the elusive character of the relationship between ends and means in pragmatic theories of education and of value. Hilliard's discussion of this relationship offers a consistent position within a pragmatic philosophy that avoids the "infinite regression" criticism directed at Dewey's theory of valuation while it adequately exposes the dangers and fallacies of an absolutistic approach. While pointing out the consequences historically whenever authorities have pursued the policy of "the end justifies the means," Hilliard is careful to go behind the pragmatic cliche that "the end never justifies the means" and to demonstrate that there is a sense in which ends do justify the means—a sense which constitutes the only justification for their being means at all. These ends are experiences which are intrinsically valuable (in the same sense of "intrinsically valuable" as in C. I. Lewis). The chief merit of Hilliard's exposition of this relationship lies in his refutation of logical and psychological arguments directed at philosophies of science, especially those which accept the egocentric predicament as a genuine philosophical problem but nevertheless define the "intrinsically valuable" as a mode or quality of experience. Undoubtedly, Lewis's presentation of a pragmatic-scientific theory of knowledge and valuation is probably the most thorough analysis of this kind we have, but since Lewis as much as possible consciously avoided dealing with possible refutations of his position in his major work, Hilliard's book is valuable for its treatment of such refutations within a Lewisian frame of reference.

In my opinion, there are serious logical fallacies in several parts of Hilliard's argument, as well as instances in which basic conclusions are inferred from very weak empirical evidence. An example of the former may be found on page 96 where Hilliard shows that he is not aware of the distinction between a statistical generalization and a scientific law, and an example of the latter may be found in his acceptance of the view that the masses are inherently too dumb to know what is good for them. It is rather interesting that for all his criticisms of Plato, Hilliard accepts Plato's "noble lie" theory of government. "Doctrinaire democrats" may not like the brute fact that "noble lies" are necessary any more than they will Hilliard's invitation to the masses to turn their fate over to the expert—in this case, the axiological expert—in order to experience the good life. Also, although seldom do more than a few pages go by without an attack upon someone else's cliches, Hilliard himself is not above resort to some of the most ancient ones

in philosophical literature. Thus on page 88 he appropriates one of Aristotle's least brilliant observations, to the effect that we must not "expect more accuracy than the nature of the subject admits of," in defending the possibility of a rational, although not exact, estimation of value—as if anyone at this time can say how much accuracy we will ever achieve in psychological phenomena.

Although considerations of content invite and justify a much more extended discussion than is possible here, a few words of praise must be reserved for Hilliard's concern for clarity and order in his presentation. His unambiguous statements of what he is attempting to accomplish, orderly presentation of issues, resolute efforts to deal with the "hard cases" and "exceptions" that his position finds most difficult to explain, liberal use of examples, and continued attention to clear meanings provide a readable and refreshing contrast to the philosophical literature which mistakes unintelligibility for profundity. Also, certain technical details which can be omitted without interrupting the argument are marked off in each chapter where they occur.

In summary then, the author has an axiological position which is clearly stated and which deserves a wide audience despite its faults. In order to be clear wherein one disagrees with Hilliard, the philosopher, educator, or student will have to go a long way toward clarifying his own position concerning the major axiological issues and for this reason the book merits a careful reading by individuals interested in ethics, aesthetics, and general value theory. This reviewer also sees possibilities in *The Forms of Value* as a textbook for teachers looking for a fresh and vigorous statement of many traditional issues in these disciplines. However, it is also my opinion that an alert and critical reading is required else Hilliard's errors, like Plato's, will be more persuasive than his insights.

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* * *

Creative Leadership of Adult Education. By Paul L. Essert. N. Y.: Prentice-Hall, Inc., 1951.

The author of this work explains it is the product of some 400 interviews on all levels and with all types of adult education leaders, in some 78 localities, over a period of a year in 1947. Like a modern Diogenes of adult education, this man went out seeking basic and honest answers to two questions:

1. "What can each institution or agency do best, without losing its institutional uniqueness, to bring about an improvement of its present methods for broadening and deepening the qualities of adult experiences which contribute to the personality-centered [as opposed to the 'institutionally-centered'] state?"
2. "What specific plans and practices are there that would indicate trends towards a clarification of the role of institutions in developing education for the essential experiences for maturing adulthood?" (p. 176).

In these two questions are contained all the major notions expanded and treated throughout the book. Let us look at each of them denotatively first and sketch only a few connotations that arise as we look at them critically.

First, the author argues that adult education is much more than "holding classes" for adults. This is derived from his concern in his basic questions for

investigating *all* agencies of potential worth for adult education. This is important not only because it departs from the misplaced caution of the orthodox view which holds that only "educational" agencies are to be used, but also because it implies a commitment to a pluralistic view of the structure and worth of social instrumentalities. This seems all to the good. There remain, however, important questions.

Let us raise just one of the more inclusive of these questions. On what basis of authority does the adult educator enter into cooperation or collusion (since both forms of association are equally possible) with this or that particular agency or institution? The author devotes only very generalized comments that suggest too much is taken for granted about the motivations and operations of agencies and institutions interested in proselyting and coercing opinion. This reader would have found greater use and worth in the author's obviously sound proposition if it had been examined in the light of such realistic considerations as the one just mentioned.

A second central notion implied in the two basic questions used by the author as his tools of inquiry concerns his views on the "personality-centered" state versus the "institutionally-centered" state. We quickly learn the author equates the former with a free democracy and the latter with a slave state. This is hardly a distinction to be controverted, but there are some questions to be raised here, even though the point seems so obvious and so true.

In specifying the features of the free and slave state, the author makes what struck this reader as a curious and mischievous observation. In depicting the utterly despicable plight of the slave state, our author concludes:

> "The *only* remaining point upon which the institutionally-centered slave state can evaluate its growth and progress is the material structure—the *improvement of living conditions:* the *growth of production*, the *spread of ploughed fields*, the *increase of machines, clothes*, or *food*. What happens to the creative impulse of the people is unimportant in such a state." [my italics] (p. 172).

This is curious because it seems to give all the tangible and meaningful proofs to the enemy while leaving us with the intangible, mystical "creative impulse." It hardly seems suitable fare for the American spirit which has sought as its justification and goal the universal extension of higher and higher living standards. We hear this dinned into our ears, stamped into our visions day in and day out. It is even more curious when we consider the author's examples scattered abundantly throughout the book illustrating how adult education has salvaged farms in this region, a community in that region, or an occupation for some particular individual.

The author's view is mischievous here because it tempts us to endorse our present state of affairs. The author may not have so intended but the suggestion is there. Moreover, it tends to make democratic ideology sentimental and mystical. As soon as we grant efficiency, order, and tangibility to the slave state and grant that the free state thrives on something "more," we are in serious and dangerous straits. The author heartily approves of individual efficiency, orderly living, and tangible rewards for persons, but denies or subordinates these social virtues in evaluating an ideology.

A third important point raised by the author's two-pronged inquiry concerns certain "essential experiences" for adults. The author lists five such experiences:

"(1) occupational achievement; (2) understanding, or search for truths and beauty; (3) self-government; (4) close fellowship; and (5) intermittent solitude." (p. 17). It seems to this writer that the author has selected some very significant experiences around which to organize and evaluate adult education activities. The only difficulty that arises is that nowhere in the book is an attempt made to do that. Instead, the author describes a practice he observed, a practice oriented to very different aims than those implied by the five "essential experiences" and he judges the observed activity as either satisfactory or wanting. This kind of mechanical, *post hoc* matching of criteria extrinsic to the activity measured is, to say the least, highly questionable. The author's criteria float like dead wood throughout the course of the book.

To make these five "essential experiences" vital as criteria, the author might have undertaken a more deeply theoretical and experimental analysis of what conditions such experiences seem to require. The author chose not to do that, choosing instead to recount experience after experience, anecdote after anecdote, with only a mechanical connection relating the activity to the criteria.

Leaving these specific points, a general criticism of the book is hinted at in this last comment. As it stands, the book attempts to embrace everything and find explanatory categories for everything. It doesn't work out. Like so many similar attempts, the book neither argues its theory thoroughly nor describes and interprets its illustrations satisfactorily. While many of us may feel as the author does that statistical tables of attendance, etc. do not make an adequate evaluation picture, we cannot accept as a significant innovation a list of "essential experiences" which mean a thousand different things to any ten adult educators. Our need is for *more* rigor in measurement of quality, not less.

Positively, this work offers some very promising and interesting beginnings, especially in the first two parts in which the author attempts to do some needed theoretical housecleaning. It also presents fragmentary but provocative descriptions of a great variety of activities in adult education. There are 12 pages of selected references listed at the end of the book which are very useful. Along with this is the reproduction of page after page of questionnaire forms which may be suggestive to someone currently struggling with this device. And, finally, the style and organization of the work is helpful to the reader's understanding.

By Leo A. Molinaro
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* * *

Cultural Sciences: Their Origin and Development. By Florian Znaniecki. Urbana, Illinois: University of Illinois Press, 1952.

In order to solve problems concerning the relationship between sociology and the natural sciences, Professor Znaniecki has made a study of the historical evolution of scientific knowledge. He goes back to primitive ideas of good and evil, to black magic, Greek philosophy, and on to modern science. By recalling the dark gods man's mind has already conquered, he offers hope that man may yet save himself from the negative prospect of the atomic age. The sociologist proves that the cultural sciences are as much of a science in their way as the natural sciences are in theirs, thus answering the current lament that we study "things" instead of "man" and allow the cultural sciences to lag behind natural sciences. □

EDITOR'S NOTES

■ A PREVIEW OF THE JULY NUMBER

Most of the space in the July, 1952, number of *Educational Theory* is to be devoted to a series of articles, each of which deals with the thought of some educational theorist. These articles were prepared independently and vary considerably in their approach and viewpoint. Nevertheless, taken together, they provide an unusually stimulating overview of some of the more significant currents in the development of educational thought.

Space does not permit an elaborate description of each article, but some indication of the general character of the Number may be given. Evelyn Shirk, whose book on the philosophy of Alfred Lloyd is being published by the University of Michigan Press, has contributed an article on "The Educational Philosophy of Alfred Lloyd." Professor Shirk, who feels that Lloyd has remained for too long in obscurity, states that, "the issues which concerned Lloyd are those which are particularly alive today, especially in the biologistic and anti-atomistic emphases of contemporary philosophy."

In an article entitled, "The Complex Nature of the Good," William S. Kraemer, of the University of Arkansas, analyzes the ethical philosophy of Leonard Trelawney Hobhouse. Professor Kramer stated, in a letter to the Editor, that he believes that Hobhouse, in his development from philosophy to sociology, was trying to do in Great Britain very much what Dewey was doing in this country. Two other articles will deal specifically with the thought of some writer as related to, or in contrast with, the ideas of John Dewey. Professor J. P. Wynne, author of the recent book, *General Education in Theory and Practice*, has contributed an article on the subject, "Mind and Education from the Standpoint of John Dewey and George Herbert Mead." Arnold Maddaloni makes an unusual comparison between the pragmatic thought of Dewey and that of the "evolutionary psychologist," Theodore Schroeder, in an article entitled "Two Liberaisms; A Study in Contrast." Maddaloni points out what he believes to be the fundamental differences between a logical and a psychological approach to problems of social and educational theory.

Ronald Levy has contributed an article on "Peirce's Theory of Learning" in which he has attempted to collect and expand some of Peirce's more explicit statements about the learning process. In an article, "Josiah Royce and the Art of Teaching," Willis Rudy, of the Harvard Graduate School of Education, deals with the educational thought of a philosopher who stated unequivocably that there was no such thing as a science of pedagogy and who prayed to be delivered from a "philosophy of education." William O. Stanley has contributed an article on "The Social Philosophy of Edmund Burke" in which he attempts to assess the more enduring values of an intelligent and systematic conservative philosophy.

The July number will include an article, "Causation, Goals, and Methodology—The Reconstructionist Perspective," in which Theodore Brameld replies to some of the recent criticism of his philosophy of "reconstructionism." The number will also include a review by Frederic Lilge of the two books, *Religious Values in Education* by Ward Madden, and *Crisis and Hope in American Education* by Robert Ulich.

Recent numbers of *Educational Theory* have appeared late because of circumstances beyond the control of the Editorial Staff. The manuscript copy for the July number is being sent to the printers in ample time to permit publication on schedule. Any delay will be the result of unforeseen circumstances. The Editorial Staff requests the indulgence of its subscribers until the difficulties besetting the path of a new publication are sufficiently overcome to permit adherance to a rigid publication schedule.

—A. W. A.

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All communications concerning the John Dewey Society should be sent to the Vice-President, H. Gordon Hullfish, College of Education, Ohio State University, Columbus 10, Ohio.

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EDUCATIONAL THEORY

Volume II. April, 1952 Number 2

Contents

Page

THE IDEA OF LEARNING AS DEVELOPMENT OF INSIGHT 65
Ernest E. Bayles

A MID-CENTURY APPRAISAL OF "RECONSTRUCTION IN PHILOSOPHY" 72
Joseph F. Blake, Jr.

EXISTENTIALISM AND EDUCATION 80
Theodore Brameld and Others

THE EXTENSIONAL LIMITS OF ARISTOTELIAN LOGIC 92
Earl C. Cunningham

THE GROWTH THEORY IN MODERN SECONDARY EDUCATION 108
Harl R. Douglass

TOLERANCE, INTOLERANCE, AND PREJUDICE 116
Samuel Engle Burr, Jr.

BOOK REVIEWS .....

The Forms of Value. By A. L. Hilliard. *Reviewed by Myron Lieberman* 123

Creative Leadership of Adult Education. By Paul L. Essert. *Reviewed by Leo A. Molinaro* 125

Cultural Sciences: Their Origin and Development. By Florian Znaniecki. 127

EDITOR'S NOTES 128

2

e

65

72

80

92

08

16

23

25

27

28